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ABSTRACT

This resource packet includes a teacher's guide, reproducible student worksheets, posters, activity cards, and a music audiotape: "Song of the Forest," with a booklet of lyrics. The teacher's guide suggests interdisciplinary activities which meet the United Kingdom's National Curriculum requirements and encourage active learning as students explore ideas and discuss issues related to tropical rainforests. Activities will take about 10 half days to complete or may be used as a basis for a half term's theme work on tropical rainforests. Students are invited to consider the different lifestyles of indigenous Kelabit and Yanomamo peoples; explore different aspects of ecological, cultural, and economic interdependence; investigate the relative meanings of the terms wealth and poverty; analyze the power people have and how they use it; and raise questions about the long term effects of actions taken today. Students are involved in developing a range of skills, engaged in exploring attitudes and values, and encouraged to practice collaborative learning. In addition to background information and sequentially presented activities, the teacher's guide includes instructions for using the supplementary materials, teaching points and interdisciplinary extensions, National Curriculum Attainment Targets, and recommended resources. (MM)

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A RAINFOREST CHILD

ED 407 348

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An Active Learning Pack for 8-13year olds

Lyle and Roberts

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Life on earth depends on energy from the sun, clean air, water, and soil. Trees and other plants are the basis of the planet's life support system. Forests are also a vital resource for human beings, providing food, fuel and timber. The rainforests located between the tropics of Cancer and Capricorn are the richest ecosystem on earth, containing between 50% and 90% of the world's animal and plant species. Tropical forests are also the original source of many of our foods, including bananas, Brazil nuts, pineapples and coffee, and they provide raw materials for industry in the form of waxes, gums, resins and rubber. Many rainforest plants contain substances which have medical value and can be used to produce drugs to treat a wide range of diseases, including cancer and heart disease.

Agriculture, too, depends on the genetic diversity of the forest to develop new strains of crops which have resistance to pests and diseases. Forests protect soils from erosion and regulate the flow of water to streams and rivers. Tropical forests also play a vital role in regulating the world's climate because they create the rainfall which is carried through the forest system and to areas far away from the forest itself.

Trees take in carbon dioxide and water from the air, and release oxygen into the atmosphere. Throughout the developing world, forests are the source of food and animal fodder, and ensure the water supply to millions of villages as well as providing firewood for cooking and heating.

Rainforests are home to an estimated 140 million people who have much to teach us about how to live in harmony with the forest. Some Amerindians in Amazonia have lived in balance with this complex ecosystem for over 20,000 years. Yet it is the developed countries, with only 30% of the world's population, that consume 88% of all industrial wood. Only two hundred years ago Britain depended on woodland as an essential resource in an agricultural society. Its native trees have virtually all gone: only 3% of the ancient woodland is left, and it depends on the rest of the world for most of its timber needs.

Since the Industrial Revolution many of the planet's forests have been destroyed or are dying. The rainforests of the world are vital to us all, yet at the current rates of destruction (40 hectares per minute), within 30 years there will be few undamaged areas left, and within 50 years all the world's tropical forests could be gone. Africa has already lost half of its rainforest. In Sarawak, in Borneo, 60% has been leased out for logging and all may be gone by the end of the century. In Brazil transnational corporations are turning the Amazon Basin into cattle ranches, timber mills, rice paddy fields or gigantic mining operations. Huge dams are being built to provide hydro-electricity for the industries which are destroying the forests.

The people who live in the rainforests - hunter-gatherers, the slash-and-burn agriculturalists and the rubber tappers who extract the resources of the forest on a sustainable basis - are totally dependent on the rainforests for their existence.

In 1495, when Spain and Portugal divided up South America between them, there were 6-9 million Amerindians living in the rainforests, today they number only 20 000.

Unused to the diseases brought in by Europeans, they have been decimated by colds, 'flu and measles as well as by more deliberate acts of aggression. As the forests have been cut down, the Amerindians have lost their land and their way of life. Only recently has it been recognised that their approach to land use is the most sustainable means of using the forest. Contrast the average meat yield of a hectare of rainforest cleared for cattle ranching in Mexico with the traditional agricultural system of the Lacandon Maya. They produce up to 5800 kg of shelled corn and 4500 kg of root and vegetable crops per hectare per year. The cattle ranchers produce as little as 10 kg of beef.

The first stage in the destruction of a rainforest is most typically the arrival of the logging companies seeking valuable hardwoods such as mahogany or teak. In felling just these selected trees they damage 30%-50% of the forest canopy. The roads which the loggers build for tree extraction attract a second wave of destruction in the form of peasants wanting to clear land to plant subsistence crops such as corn, beans, rice and manioc. After one or two crops, the soil's fertility drops dramatically and the families move on to another area of forest leaving the land for the cattle ranchers. The final stage in the destruction is the cattle: after seven to ten years the effects of over-grazing and torrential rain turn the rainforest into eroded wasteland.

Throughout the tropics, forests which are essential to the maintenance of the fragile ecosystems found in tropical countries are being destroyed. For those living in these countries the destruction of forests and the consequent soil erosion is catastrophic, leading eventually to the creation of deserts.

On a deforested hillside, water flows unimpeded. In a forest, some of the water received as rain is trapped by the tree roots or held on leaves and returned to the atmosphere. In a deforested area this does not happen and so additional water flows into the river channel. Far away from the deforested area, rivers may flood because of an increase in volume of water. In the deforested hills, streams become choked with debris and sometimes they run dry. Deforestation causes water tables to fall, soils to erode and land to become dusty and arid. Rainforests normally take in carbon dioxide and release oxygen. When they are destroyed, particularly by burning, there is a large increase in the amount of carbon dioxide in the atmosphere which most scientists believe will trap heat and lead to the 'greenhouse effect', raising temperatures worldwide.

The Centre for Agricultural Strategy has predicted that, by the year 2000, world wood consumption will have doubled and there could well be a shortfall. Britain will find wood more expensive and harder to come by. The destruction of the tropical forests is happening because the industrial system which dominates the world treats

the earth's natural resources as though they were infinite. The philosophy of the industrialised countries is that 'development' means unfettered competition in which there are no limits to the exploitation of resources (or people). In 1987 the World Commission on Environment and Development's report, 'Our Common Future' pointed out that current styles of economic development draw too heavily on already 'overdrawn' environmental resource accounts, in effect, bankrupting our future. Current growth rates and consumer demand may show profits on the balance sheet of this generation, but our children will inherit the losses. The report recognises that the developed world treats the world's forests not as a resource to be carefully husbanded but as raw materials to meet economic growth. The losers include the millions of peasants who have lost their land to large landowners to grow cash crops for export. These dispossessed peasants are forced to seek work elsewhere and often end up in the shanty towns of one of the big cities. Now, throughout Latin America, landless peasants are moving out of the city slums into the rainforests where they try to earn a living for themselves and their families often in direct competition with the Indians of the forest. The loss of the rainforest people and their cultures is one of the greatest tragedies of our times: people who have lived as the human component in a balanced ecosystem for 20 000 years are being wiped out in a few hundred years. With them goes their understanding of the world's most complex ecosystems.

ACTION FOR CHANGE

In Britain The Ecologist magazine has launched a major campaign called 'Save the Forests - Save the Planet'. Their aim is to collect over a million signatures calling for a meeting of the United Nations to debate this crisis which has been described as "a threat to civilisation second only to thermonuclear war". Friends of the Earth groups all over the world are campaigning to stop forest destruction; the World Wide Fund for Nature has several campaigns to save rainforests in Africa and Asia. In Panama the Kuna Indians culture is tied to nature: their food, medicines, canoes and buildings all come from the rainforest. These people are meeting the twentieth century's destructive forces on their own terms: they have set up a control centre and appointed forest guards to patrol around their forest; trespassers are warned that no intruders will be tolerated. Here the forest survives and flourishes, cared for by the people who know it best. In Amazonia the traditional rubber tappers are taking measures similar to those taken by the Kuna to protect their trees. Their spokesperson Chico Mendes was tragically assassinated in 1989. At Altamira this year many different tribes of Amazonian Indians met to protest against the Altamira dam which threatens to destroy their way of life. The conclusion is clear: if the people who live in the forests are left to continue their way of life, then we shall look after the forests themselves; when outsiders interfere the forest is destroyed. Britain now depends on the rest of the world for 90% of its timber and is the world's third largest importer of tropical hardwoods. Environmentalists have long argued that Britain should begin to manage its own natural resources properly and re-plant new broadleaved forests for the benefit of future generations. Our children can plant trees and in this practical way enhance the beauty of their own environment as they become aware of the pressure on the world's forests and ensure a source of timber for future generations.

A RAINFOREST CHILD

AN ACTIVITY BASED TEACHING PACK

Teachers using this pack will find that the activities included will take about ten half days to complete. We hope, however, that teachers in primary schools will use the pack as a basis for a half term's theme work on tropical rainforests. With this in mind we have included suggestions for extension activities which cover a range of curriculum areas including science and technology, maths and English, music, art and craft, religious education, geography, history, nutrition and environmental studies which will meet the requirements of the national curriculum. Included with this pack is the SONG OF THE FOREST and a booklet containing the words of the songs. Based on the assumption that the organ best suited for vision is the heart, the World Wide Fund for Nature commissioned this musical to illustrate the problems that exist in the Amazon Basin today.

In the first edition of A RAINFOREST CHILD we recommended this musical to teachers. The feed-back from those who used it was so positive we decided to include the tape in the second edition with a number of new activities specially written to accompany it. Two of the songs in the booklet do not appear on Song of the Forest; the full musical is recorded on YANOMAMO available from the World Wide Fund for Nature.

The activities included in the pack and the suggestions for extension work are designed to develop active learning. Children are encouraged to explore ideas and discuss issues and so develop their understanding of the world in which we live. This involves developing a range of skills, exploring attitudes and values, and encourages collaborative learning.

Teachers will find that there are a number of resources on tropical rainforests and that this pack differs from most in the very important respect that it introduces moral questions about human activities which are destroying the rainforests.

A central aim is to help pupils see how the world is interdependent , to recognise injustice, and think how they might wish to change things they consider to be imperfect.

KNOWLEDGE

The activities in the pack help children understand something of the complexity of the ecology of the rainforest and how the indigenous people relate to it. In considering the different lifestyles of the Kelabit and Yanomamo peoples they explore different aspects of interdependence: ecological, cultural and economic. In doing so they gain a different insight into the relative meanings of the terms wealth and poverty. They gain some understanding of inequality between the people of the world and the power different groups have and how they use it. In studying rainforests, questions are raised about the world tomorrow and the long-term effects of our actions today. The children are encouraged to speculate about the future and investigate ways in which they could act to influence it.

CONCEPTS

The activities in this pack can be used to explore and develop understanding of the following concepts: i) causes and consequences as exemplified by the short-sighted way we are using the resources of the rainforest today when we have gained so much understanding of the probable long-term effects; ii) interdependence of living things in the rainforest and the place of humans in the ecosystem; iii) values and beliefs concerning the environment as evidenced by different individuals and groups of people whether in Britain or elsewhere; iv) similarities and differences

between people living in different parts of the planet.

ATTITUDES

Investigating the lives of others, children will be encouraged to empathise with people in other countries. They can express their attitudes and values, and understand how they are formed. They learn to recognise the validity of different points of view and attain a greater understanding of the ways both our society and others relate to the world and in particular to the environment. Through activities about the ecology of rainforests they can develop a deeper appreciation of nature.

COLLABORATIVE LEARNING

The activities in the pack are based on children working in pairs or small groups for most of the time. This enables them to take responsibility for their own learning and that of others. The activities aim at encouraging talk between pupils; they will need to seek information from each other and from the materials, as well as from books, and to speculate on information through discussion. This style of active learning can stimulate the children's desire to find out more about rainforests. Teachers who have used the first edition of the pack have found a range of resources to extend children's work. These are listed at the back of this book.

SKILLS

The children will practise research and information processing skills, and extend their ability to analyse information critically. Mapwork will augment their geographical skills. Communication skills (reading, writing, speaking and listening) are enhanced through active learning approaches which incorporate discussion, research and analysis.

ACTIVITIES AND EXTENSION WORK

This pack can be used as it stands but we hope teachers will use it as the basis for themework in the primary or middle school. The materials have been used successfully in secondary schools with first year Humanities and second year Geography. It would fit in well with Environmental studies and a science based approach to thematic work. We include many suggestions for extension work. All the activities have been tried successfully in many schools. The strength, however, of working thematically is the flexibility it allows teachers to build on the children's interests and experiences. The theme of rainforests has proved very exciting to children and has provided a useful framework for helping children understand some of the ways in which the world works and their relationship to it. We hope you and the children enjoy using the pack as much as we have enjoyed preparing it.

GUIDE TO THE HANDBOOK

There are various headings throughout the book which are explained below.

PREPARATORY WORK

Suggestions for work to prepare children for an activity.

ACTIVITY (followed by a number) Refers to activities which are included in the pack as photocopy masters and card activities.

EXTENSION WORK Suggestions for work to follow up and extend an activity.

TEACHING POINTS These help pinpoint the specific learning we hope the children will gain from a particular activity. At the time of writing this the Geography attainment targets have not been published. However, we believe the terms of reference given to the working party show that this pack will be particularly relevant in meeting those targets. For example, the working party have been asked to make sure that pupils learn a sense of place, an understanding of the relationships between places, and an appreciation of the value of maps. They should understand and respect natural environments and particular attention should be given to the impact which human activities have on them. The real costs and benefits of an environment should be appreciated.... Children should learn about the ways of life and cultures of other peoples and be able to relate this knowledge not only to their home area but to other places in Britain and also to Britain's place in the world .

TEACHERS' NOTES Give additional factual information which we hope will prove useful to busy teachers.

SUGGESTIONS FOR PREPARATORY WORK

Starting where we are

If the children are to come to grips with some of the huge differences between their lives and those of people who live in the rainforest then it is a good idea to take as a starting point something nearer home. The first few activities in the pack help children build up an understanding of the structure of the rainforest and the climate and how these two factors determine everything else. The distinguishing features of rainforest climates are the constancy of the temperatures, varying by only a few degrees all year round, and heavy rainfall. The following activities have proved useful in schools and meet some of the attainment targets for science.

RAIN GAUGE

The children make a simple rain gauge and collect and measure the rainfall over a term before the project begins. They can make bar charts to show their findings and gain some understanding of averages.

TEMPERATURES

Similarly the children can measure the temperature outside the school each day for a term and record their findings in a variety of ways.

LOOKING THINGS UP

The children can look up the average temperatures for their area and compare them with the ones they have recorded. This introduces the children to graph work and makes Activity 9, Temperature charts, more meaningful to them.

EVAPORATION & TRANSPIRATION

Bring some pot plants to school and water them well. Cover some with a plastic bag which has no hole in it. Tie the opening of the bag around the stem of the plant and put the plants on a sunny windowsill. Look inside the plastic bag after a day or so. What can the children see? What has happened to the water in the pots which were left uncovered?

LOOKING AT SEASONS

It is important that the children have a clear understanding of our different seasons before they undertake a study of rainforests where there is only one season. The following activity has proved very useful: Display about ten photographs around the classroom to show scenes and activities which are related to the seasons of the year. The children should work in pairs and study the pictures in order to fill in a chart like the one below:

Picture no.	What season?	Why?

It is important to include some photographs in which the season is hard to identify in order to talk about the pictures in some detail and encourage the children to look for clues which might help them decide which season a picture depicts and explain why.

MAP WORK

Included in the pack is an outline map of the world to photocopy and use with the children in Activity 1. The map uses the Eckert projection which has the advantage of being an equal area projection, but doesn't distort the shapes of the countries as badly as the Peters projection.

The Peters projection was developed to correct the impression of the world given by the commonly used Mercator projection.

The Mercator map was designed for European purposes with Western Europe near the centre of the map, resulting, for example, in gross exaggeration of the size of Greenland and a corresponding contraction of the apparent size of South America and other places south of the Equator.

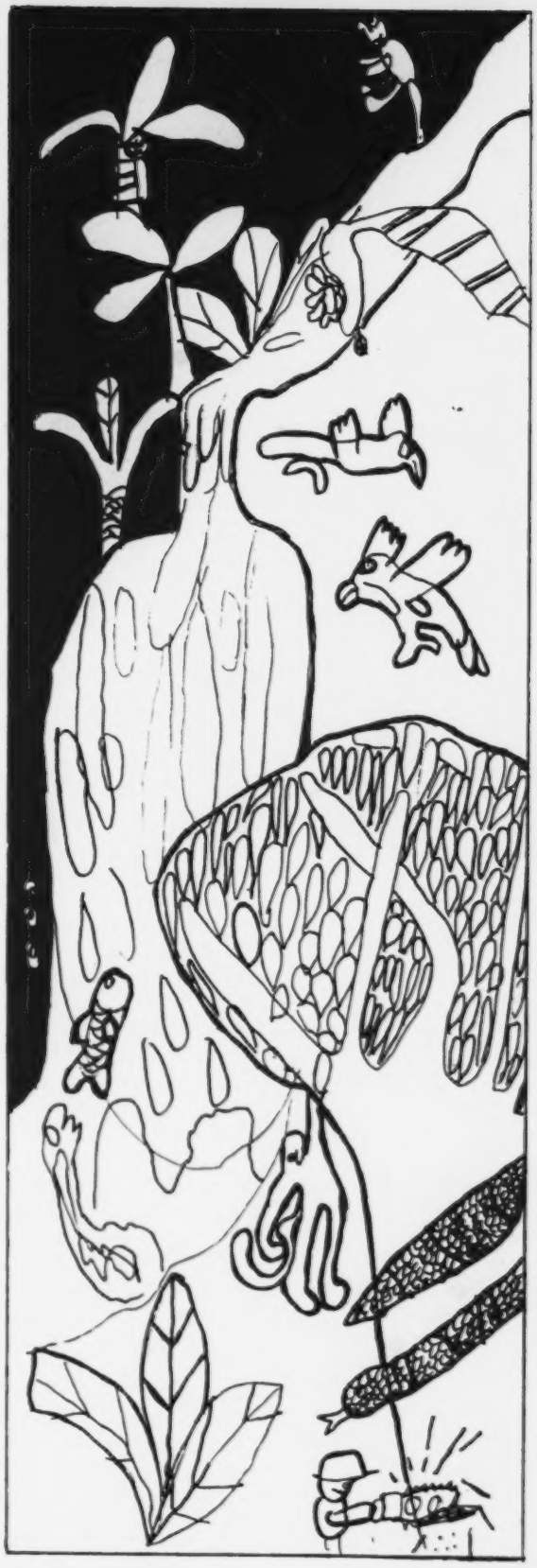
We think the Eckert projection is an improvement on the Peters. Nevertheless, all map projections distort in some ways and the Eckert projection results in New Zealand being slightly displaced and the omission of part of Antarctica and the Pacific Ocean.

In our active learning pack, AN ARCTIC CHILD, there is a map activity which involves children imagining what an Arctic-centred map

of the world would look like.
Such a map is included in the pack and really challenges our images of the world.
It is important that children understand how difficult it is to draw a spherical surface on a flat one, and teachers have found many ways of demonstrating this to children before they look at the Eckert projection.
Children can try and cut up an old ball or peel an orange to see the difficulties of flattening something which is round. Some children tried to draw their partner's head as if it were a map and used imaginary zips to 'open' them flat.
The Scottish Tourist Board produces a map showing Britain from a Scottish perspective which is very dramatic and engages the children's interest. Children have gone on to draw Britain from the perspective of where they live. They could try drawing world maps from the perspective of a Chinese child, an Australian child, a Pakistani child or a penfriend from some other country.

BRAINSTORMING

Before beginning the activities the children should be given the opportunity to say what they already know about the topic. Working in groups of four, children should be asked to BRAINSTORM and write down whatever comes into their heads when they hear the word 'RAINFORESTS' or 'JUNGLE'.
One child in each group should act as scribe and write down everything everybody in the group says. This activity should take about 5 to 10 minutes and when the time is up a spokesperson for each group should read their lists out. A class list can then be made to pull all their ideas together. This can be referred to later on, to help children see how many new things they have learned and to correct any ideas which were false.



PLANNING THE WORK

Tropical rainforests is an exciting topic for teachers as it raises global issues and highlights the key concepts of interdependence, ecological understanding, political education, human rights and education for the future.

Everyone depends in a multitude of ways on trees in their daily lives. However whilst deforestation in Britain is a problem, deforestation in South America, Asia and Africa (where 70% of the world's people live) is catastrophic.

The HMI report, "The Curriculum from 5 to 16", spelt out that education should deal with social, economic and political issues. In a democratic society young people should be educated to think critically and responsibly about important world issues such as what's happening to the world's tropical rainforests.

Children are very interested in what goes on in the world, both in their immediate environment, nationally and globally so it is important that they are are well informed and aware of the real choices facing them as they grow up.

The approach of this teaching pack can be described as holistic: the components of this model revolve around knowledge, values and skills development.

To be effective people we need beliefs that determine who we are and what we wish to be. We need skills which help us implement our beliefs; and to help us plan our lives and make decisions we need knowledge about ourselves and other people and about the world in which we live.

A central notion here is that of choice: it is important that children understand that we can always make choices, there is always an alternative.

Children are concerned about the future: on television there is a lot of information about the destruction of the environment, the threat of war and the poverty of so many of the world's people. It is not enough to tell them what is happening to rainforests, they should understand why it's happening, who is responsible and what we can do about it.

Children need the opportunity to clarify their beliefs and values; they should feel they "own" their own skills, and believe in their power to influence and change things.

In planning work on Rainforests I was concerned to develop teaching methods which were built on a philosophy of borrowing, not of taking, and of co-operation, not of contest, because such methods can challenge our current ways of acting in the world by encouraging the kind of behaviour and developing the sorts of relationships which are compatible with sustainable development. The activities free the teacher to work closely with the children who work in pairs or in small groups most of the time.

The theme enables children to start from their own experience and move out to understand how forests are a vital resource for human beings and for the planet itself, yet they are under immediate threat.

What are the conflicts? How can we understand what is happening to forests? Where do we fit in? Can we do anything about it? What about the people whose very survival depends on the forests themselves?

All these questions are raised and considered by children studying this theme. In the process we can challenge ethnocentric views of the world, and learn about people in other countries and different cultures.

We can explore the economic and political reasons why forests are under threat and speculate about the future needs of people and planet alike.

We can be part of the important process of preparing children for planetary citizenship.

Activity 1

MAPWORK

Materials: Photocopy master 1, one for each child: a world atlas. Children work individually.

Procedure: Using the Eckert projection the children should become familiar with the imaginary lines of the Equator, and the tropics of Cancer and Capricorn. They should also name the continents and oceans. With the help of an atlas they should find out which countries have land between the tropics and mark them on the map.

NB. Because the Eckert projection is an equal area projection the children can find the Equator by folding the map in half. The Tropics lie 35mm above and 35mm below the Equator.

Activity 2

MAPPING THE FORESTS

Materials: Photocopy master 2, one for each child, and another blank map of the world. Children work individually.

Procedure: Using the map provided children should transfer onto their maps the information about the world's forests. They should use different colours to mark the three types of forest. Which countries have tropical rainforest? The children should make a list.

EXTENSION WORK

MAPS

Many children enjoy looking up the names of all the countries which have tropical rainforests. A large outline map on the wall could be used to record this information. Children may like to investigate some of these countries; in this way they will begin to appreciate the rich diversity of peoples who live in rainforests.

Activity 3

THE TREES

Materials: Photocopy master 3 and a blank piece of paper for each child.

Procedure: Ask the children to draw the structure of a rainforest from the description.

TEACHING POINTS

Drawing is an excellent way for children to demonstrate their clear understanding of a text. It is also a useful technique to assess whether a child is reading with understanding. This activity introduces children to the structure of rainforests and they are usually anxious to follow it up with imaginative artwork.

NB. It is important that this is done quite quickly as the object of the exercise is clarification of their existing ideas rather than beautiful artwork. There is plenty of artwork later on. It can be distressing for a child lovingly to draw her image of a rainforest only to discover it doesn't correspond to reality.

Activity 4

DRAWING THE FOREST

A graphic representation exercise.

Materials: Photocopy master 4. Children work individually.

Procedure: When they have finished their drawing they should be given photocopy master 4 to compare with their own drawings as a preparation for making a class frieze.

Activity 5

LIFE IN THE RAINFOREST

Materials: Photocopy master 5, one for each child. Children work individually or in pairs.

Procedure: This is an information sheet to introduce children to the complexity and variety of life in the rainforest and to give them some information which they will find interesting. Children should read it and discuss it with others.

Activity 6

THE LIVING TREES

Materials: The tape and a copy of the words of THE LIVING TREES. Photocopy master 6a and 6b, one of each between two. Children work in pairs.

Procedure: Play the children the song, THE LIVING TREES, before introducing them to the activity. The children should cut out the boxes of information and place them on the correct space on the worksheet. The process should be repeated first for the food cycle and again for the water cycle. Ideally the two sets of sentences could be photocopied onto different coloured paper to avoid mixing up the two sets.

TEACHERS' NOTES

Plants are the only living things that can manufacture new living material from the natural resources of the sun's energy, gases in the air, soil nutrients and water. All other living things depend directly or indirectly on green plants for their food. Energy, water, gases and nutrients are continually moving in and out of a living tree and when it dies it too is broken down and the nutrients absorbed by other trees. It is vital for children to grasp how important green plants and especially trees are for the survival of life on earth. Rainforests provide about 50% of the world's oxygen; however, they probably consume as much oxygen as they produce. (Oxygen for animals and humans is probably provided by the algae of the oceans). Carbon dioxide is removed from the atmosphere and fixed in plants as carbohydrates. The carbon dioxide is released back into the atmosphere during respiration of the plant, or when the plants are burnt. Some scientists believe that if all the rainforests were burnt down the world's store of carbon dioxide could increase by 10% having severe effects on the earth and contributing to the greenhouse effect. This could cause a rise in the earth's temperatures and lead to the melting of the ice caps which would raise the sea level and flood lowlying areas, including cities and whole island countries.

EXTENSION WORK

SCIENCE

Work on decomposers can help children understand how dead plant matter is decomposed in the soil. You will need four pots filled with soil. Bury a few leaves in each pot and put them in different places. Put two pots in a warm place, water one regularly and leave one dry. Put the other two pots in a cold place, water one regularly and leave the other dry. Every two weeks look at the leaves to see how much has decayed away and then carefully bury them again. The children should keep careful records about which leaves decay faster and, with their knowledge of rainforests, try to work out the reasons.

Activity 7

ANIMALS OF THE JUNGLE

Materials: The tape and a copy of the words THE JUNGLE GARDEN. A set of white cards for each group. Photocopy master 7, one for each group. Children work in groups of 4.

Procedure: Play the song THE JUNGLE GARDEN to the children. The accompanying set of cards gives information about all the animals in the song. The instructions on the sheet are self-explanatory

Activity 8

THE FOOD WEB OF THE JAGUAR

Materials: The tape and words of the song THE JAGUAR. Photocopy masters 8a and 8b. Children work in pairs.

Procedure: Play the children the song and then give out the worksheet. The instructions are self-explanatory.

EXTENSION WORK

Further songs about the different animals of the rainforest include THE SLOTH and THE MONKEY'S TALE and can usefully be played at this stage.

EXTENSION WORK

ART and CRAFT

Children have produced some beautiful friezes of rainforests and some have built three dimensional forests in their classrooms. It is important to have a range of colourful materials such as tissue paper at hand and a range of natural fibres like jute, hemp, cotton and sisal. Using these, children can create beautiful "trees" and at the same time will have handled materials which have come from tropical climates. We suggest that the frieze should show the layers of trees and plants in the rainforest. At this stage children should get involved in finding out about the amazing complexity of life in the rainforest and decide which country their rainforest is going to be in. When they have decided that, they can use reference books to discover what animals live there. Perhaps different groups of children can look at different rainforests. The poster included in the pack shows some of the animals of the Madagascar rainforest.

An excellent way of helping children look more carefully at the natural world is to use the 'viewfinder' technique. Cut out 'picture frames' made from thin card in a number of different sizes. Make a selection of natural materials, trees, logs, bark, sticks, leaves, stones and mosses, ideally collected by the children on a woodland walk. Each child should select an item which they would like to draw. Give each child a viewfinder to focus on one part of their object which they find interesting to draw. They should then enlarge what they see through the frame, paying close attention to shape, line and form. Lots of ideas like this for integrating art and craft work into environmental studies can by found in 'An Eye on the Environment', (see recommended resources list at the back of the book).

The World Wide Fund for Nature produces a useful book called 'Animals to Make' which contains lots of ideas for making rainforest animals out of readily available and largely free materials.

STRING COLLAGES

Another activity children have enjoyed has been making string collages to represent trees. These could be an integral part of the wall frieze. By coiling, shredding, pulling and tatting, a variety of interesting shapes and textures can be created. It may be useful for the children to have pictures of trees, woods and forests to inspire them.

EXTENSION WORK

MATHS

In 'Tropical Forests' by Terry Jennings (see recommended resources) there are some useful ideas for measuring the height of trees.

TECHNOLOGY

In Terrace Road school in Swansea the teacher set the children a technology task. She asked them to devise something that in one movement would show all three layers of a rainforest: the emergent layer, the canopy and the understorey. The children produced some beautiful "pop-up" rainforests.

CLIMATE

So far the children have learnt about the structure of the rainforest and have some idea about the different layers of trees. They will have some understanding of the incredible diversity of life in the forests and its dependence on the forest for existence. In the next activities the children will find out about the climate of the rainforests. It will be helpful if the children have done the preparatory work on climate suggested at the beginning of the book, but it is not essential.

Activity 9

TEMPERATURE CHARTS

Materials: Photocopy masters 9a and 9b, a set for each pair; a coloured pencil each. Children work in pairs.

Procedure: Without letting their partners see their graphs the children take it in turns to read off the temperatures on their graphs to their partners, who plot those temperatures on their own sheets. Working alone the children then fill in the box chart from the information on their completed graphs. Some children may prefer to fill in the boxes first and then complete the graphs.

NB The children should use different coloured pens to fill in their graphs to emphasise the different regions of the world being investigated.

TEACHING POINTS

What can they learn from the graphs? Looking at the graphs the children should be asking: How many seasons are there in Britain? How do they know? How many seasons are there in the rainforests of Borneo? How do they know? Having the temperatures on the same sheets enables the children to see clearly the differences between the rainforest and Britain.

EXTENSION WORK

MATHS

Averages are often used to tell us about temperatures, rainfall etc, yet the information they give has to be treated with caution. Children could do some exploratory work on averages among themselves. What is the average age of the class? The average height? The average shoe size? If they completed the preparatory work on temperatures near the school they could compare these with Britain's overall average.

TEACHING POINTS

Reading graphs in this way is quite a skilled task and some children may need the teacher's support.

WHY BORNEO?

The rainforest in Borneo is the focus of the video from the 'Two Way Ticket' series which we recommend teachers to use with this pack. However, the temperatures in rainforests vary very little all over the world. The children could look up the temperatures of Amazonia or Korup in the Cameroons to compare with Sarawak.

TEACHERS' NOTES

Rainforests grow in regions where the temperature is constant throughout the year. The day-to-day growth of plants depends directly on the climate, and the animals who live in the rainforests are adapted to the conditions.

EXTENSION WORK

In our teaching pack AN ARCTIC CHILD children compare the temperatures of Britain with those of the Arctic regions of the world. A useful extension activity would be to compare Arctic temperatures with those of a temperate climate (such as Britain) and the tropics. This is a good opportunity to develop investigatory science work. Schools using the pack devised activities to help children investigate why the weather is so different in the various regions of the world.

Activity 10

RAINFALL

Materials: Photocopy master 10a and 10b, one each. Children work in pairs.

Procedure: Give each pair a set of masters; they should exchange the information on their bar graphs to compare the rainfall in London with that of Sarawak.

EXTENSION WORK
SCIENCE AND TECHNOLOGY

Children should make a rain gauge so they can measure and record the rainfall in the school grounds over a period of time. Firstly they should be given the task of designing and making a gauge. They need to decide what container they should use, how they can calibrate the rain collected and how to make sure the rain gauge is placed where it cannot be kicked or blown over.

EXTENSION WORK
SCIENCE.

This experiment will help the children understand how trees conserve water. You will need a tray of soil and a tray containing seedlings such as cress or grass. Put the trays on supports on large trays or on a draining board. Place the two trays together in a warm light place. Sprinkle equal amounts of water onto each one to simulate rain. Cover the trays with plastic bags or seed tray covers.

After one day examine the covers to compare the amount of condensation. Which tray allowed the greatest amount of water to drain through it? What effects do plants have on conserving water in soil?

Activity 11

THE WATER CYCLE OF THE AMAZON BASIN

A graphic representation exercise.

Materials: Photocopy master 11. Children work in pairs.

Procedure: Children should draw the water cycle of the Amazon basin from the description.

EXTENSION WORK
SCIENCE

This activity can help children learn how heat moves through fluids. Two-thirds fill two heatproof glass beakers with cold water. Drop one crystal of potassium permanganate into the middle of each beaker and put one of them over a candle or a bunsen burner. Leave the other on the table. Watch what happens. If you see moving tracks of colour forming in one beaker, what has formed them? What happens to the crystal in the other beaker? The movements are called convection currents: a similar thing happens to air when the sun shines and warms the earth, and the result is wind. Note: Potassium permanganate is poisonous, but single crystals are quite safe for children to handle (it makes a good mouth wash for mouth ulcers). A more likely danger is that the attractive purple solution stains things a nasty brown colour.

MAKING CLOUDS

Half fill a small container with water - this represents the sea. Put a piece of clear plastic over the container with a rubber band - this represents the sky. Put the container in the sun and watch what happens. When the tiny droplets of water forming on the clear plastic join together and get too heavy for the sky to hold them up, they will fall - this is rain. Water evaporates slowly all the time, even in cold weather. Why do the children think freezers get covered with frost on the inside?

EXTENSION WORK
SCIENCE

This experiment will help the children understand how plants protect the soil from erosion.

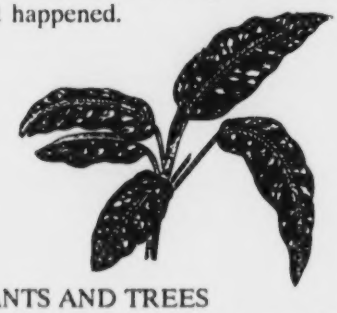
You will need two seed trays. Fill both to the top with soil and pat down smoothly. In one grow some plants such as cress or grass. Put the tray containing with plants onto a draining board or deep-sided tray and put an object under one end of the seed tray so that it slopes. Water the plants using a sprinkler and note how much soil runs out of the tray. Repeat the experiment with the tray of soil. Much more soil from the tray without plants will be washed away - eroded by the water.

EXTENSION WORK
ENGLISH

One of the songs on the tape, THE RIVER, is a poem about the Amazon. After the children have heard the song and followed the words they could write their own poems about the rainforest. Ideas for helping children write poetry can be found in the book 'On Common Ground' by Jill Pirrie (see recommended resources).

EXTENSION WORK
SCIENCE

Children need to understand the process of evaporation. This activity can be done before or after the work on the water cycle. They can put a bowl of water on or near a radiator and as a control put one somewhere cool. What happens over a few days? Children can write up the experiment by describing what they did and what happened.



PLANTS AND TREES

Plants have roots - stems - leaves. This experiment demonstrates to children how the plant takes up water through the roots and eventually into the leaves via the stem. Use a busy lizzy stem or a stick of celery, preferably with leaves on the top. Put the stem in a jar of water deeply dyed with bright food colouring or ink. Leave it a while. You will be able to see the water 'tubes' clearly in the busy lizzy stem. Cut the celery to see the water has travelled up the stem in 'tubes'. How fast does the water travel? Put one stem in a sunny position and put one in a dark place. Notice the difference.

EXTENSION WORK
SCIENCE

Another activity to demonstrate evapotranspiration can be done using a potted plant: a geranium is ideal. Water the soil in the pot, then enclose the plant in a polythene bag which has no holes in it. Tie the opening of the bag around the stem of the plant. Stand the plant in a sunny spot. Look at the inside of the bag after a day or two. What do you see? Where did the water come from? If you have a powerful magnifying glass you can show the children the pores (best seen on the underside of the leaf) through which the water escapes.

EXTENSION WORK
SCIENCE

Schools in Scotland have been working with the Botanical Gardens to help children understand more about the complexity of the rainforests. If you have a botanical garden within travelling distance perhaps the children could make links and organise a visit. The children could set up their own tropical bottle garden. The model rainforest could be a bottle or plastic sweet jar. Plants suitable to grow in it are Pilea, Maranta, Peperomia, Fittonia, Selaginella and Cryptanthus. Tropical Forests by Terry Jennings has a good description of how to set up a bottle garden.

Activity 12

WHAT HAVE WE LEARNT SO FAR?

Materials: Photocopy master 12, one for each child. Children work individually.
Procedure: Give each child a worksheet. This is a comprehension designed to draw together some of the learning the children have done by this stage in the pack.

THE VIDEO - PAULINE OF BORNEO

Details of where to borrow or buy the video are included in the resources section at the back of the book. We all have images of people and places; these images come from many sources and are often only a pale reflection of the reality. Two excellent books are published by DEC, Birmingham, which focus on exploring images.

In their book 'Themework' they suggest the following points to consider when exploring images with children:

"What specific things do we want the children to gain from exploring images? We thought the following were important to consider:

*an awareness that we all have preconceived ideas often based on little information;
*an awareness of the concepts, fact and opinion;
*an awareness that people see things differently;
*an understanding that images can be deliberately created;
* an experience of creating images;
* an awareness of the influences on the images we have;
* an understanding of how we see ourselves and the world around us;
* an open minded attitude which is flexible to change."

In order for the children to gain a greater understanding of the world it is important for them to have the opportunity to clarify what their images are already. The children's images of the rainforest will influence the way they learn more about it and it is important that they gain some understanding of what their preconceived images are, where they come from, and how they can be challenged. For instance, advertisements for fruit juices, Tarzan films and nature programmes may all feed into the children's images of the people who live in the rainforest. If their images are of "primitive savages" this can hinder their greater understanding of the people whose lives depend on the forests and who have lived in harmony with their environment for thousands of years.

The next exercise will help children crystallise what their images of rainforest people are before they see the video which portrays the life of a child and her family who live in the island of Borneo.

TEACHERS' NOTES

The island of Borneo consists of the Malaysian countries of Sarawak, Sabah, and the independent Sultanate of Brunei and the Indonesian state of Kalimantan. The video is based on a child from Sarawak.

Explain to the children that they are going to see a video about a tribe which lives in the rainforests in Borneo. Working in groups of four the children should BRAINSTORM on what they think they will see. One person in the group should act as scribe and write down everything the group says. After about 5 minutes they should report back to the whole class and the key words or ideas from the whole class should be written on the board for reference after the video. When they have finished this, show them the video starting where the presenter Sarah Hobson says "The rainforests of the world are marked in green".

Activity 13

WHERE DO OUR IMAGES COME FROM?

Materials: Photocopy master 13 and the class list they put together before the video. Children work in groups of four.

Procedure: After the children have watched the video they should get together in the same groups of four and formulate their ideas of how the video differed from or corresponded to the ideas they had in the previous brainstorming session. They should then report back to the class. After they have done this they should work in pairs and fill in the worksheet. They should then compare their checklists with another group and discuss any differences in their points of view.

TEACHING POINTS

At this stage watch the beginning of the video again where Sarah Hobson shows clips of old film to illustrate how our images of the rainforest and its people have been gleaned from television and popular myth.

EXTENSION WORK

Children should gather together advertisements in newspapers or magazines which use images of 'the jungle'.

They should watch TV advertisements to see if

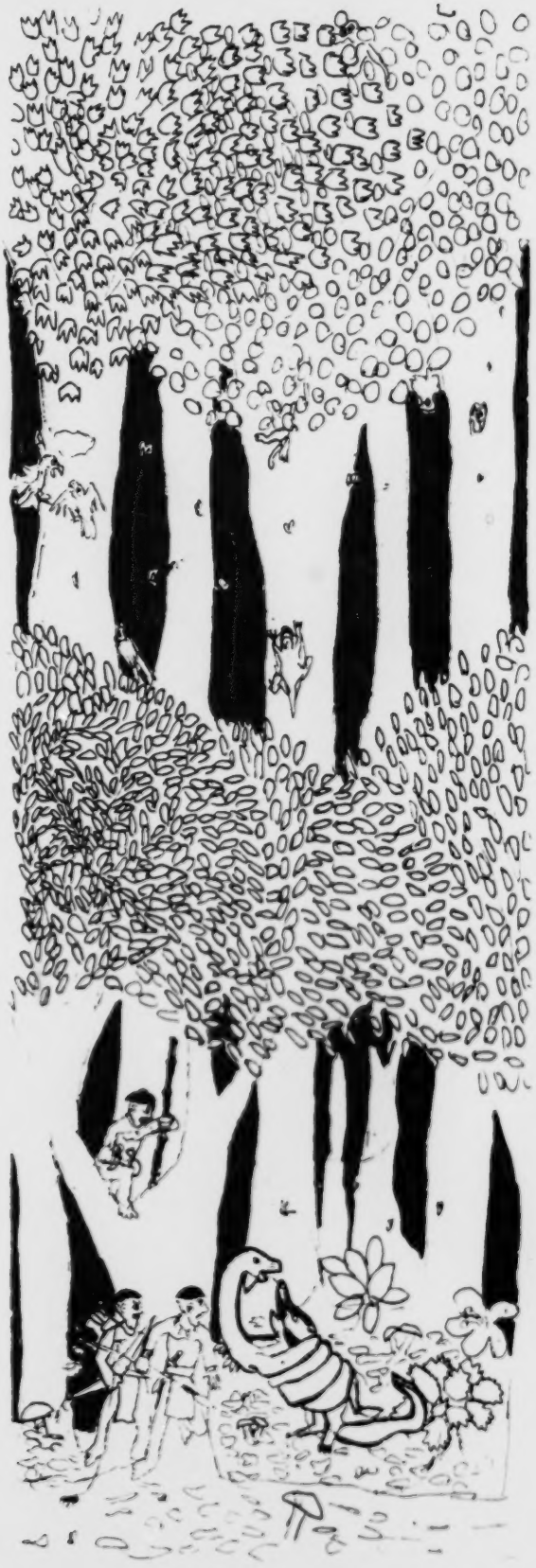
any of them use 'jungle' images to sell products. Have any of them seen Tarzan films or other films which present the forests and the people who live in them in a negative way?

What about recent TV programmes about rainforests and their people? Are different images beginning to emerge?

The children should undertake a library search to find out how rainforest people are presented in books: what does it say about them in the Encyclopedia Britannica?

This would be a good opportunity for children to consider how they would like themselves represented.

Children should work in groups of four and be asked to put together a box of images of their own area including pictures, artefacts and newspaper cuttings to give to Pauline to take back to Sarawak so the children in her school can get an accurate idea of what the area is like. (These don't have to be real things, just a list of what they would collect together). Are all their images positive? Why? What sort of images might different people present of the area, e.g. an unemployed person, a rich businessman, a child.



Activity 14

MAKING SALT IN BORNEO

A sequencing exercise.

Materials: Photocopy master 14, 1 between 2. Children work in pairs.

Procedure: The children should cut out the boxes and put them in the right order. The process of making salt is described in the video.

TEACHING POINT

This sequencing activity is a useful way of helping children understand how text is put together. In this case the text is a description of a process, rather than the narrative with which primary school children are more familiar. In National Curriculum English children are required to understand different ways of putting text together for different purposes and different audiences, this activity is a useful tool for helping them begin to understand the language of science.

EXTENSION WORK

It would be useful to set up a class experiment to examine evaporation. If they have done the class activity with the pot plants this will serve to reinforce this learning.

Stir a spoonful of salt into half a glass of water. What happens to it? Is it possible to get the salt out again? To try, put saucers containing a little plain water and salt water on a sunny windowsill. As a control put one saucer of salt water in a cold place. What happens to the water? When all the water has disappeared into the air it has evaporated. What is left in the saucer which contained salt water? Look at what is left with a magnifying glass. What shapes can the children see? These are crystals; they can taste them. Now the children can make salt themselves. Where would they go to collect the water they need? They could repeat the cloud experiment with salty water and, taking care not to splash the plastic cover taste the 'clouds' formed. Will it taste of salt? Why is the sea salty while rivers are not?

RESOURCES

Third World Science - There is an interesting teaching pack in this series called 'Making Salt' which describes a number of interesting ways different peoples have developed for making salt. (See the resources guide).

Activity 15

USING THE RAINFOREST

Materials: One set each of the two types of green cards (there are 5 sets of each in the pack), one for each group. One instruction sheet, photocopy master 15a, one per group. One DIET sheet, photocopy master 15b. Children work in groups of four.

Procedure: Children follow the instructions on the worksheet.

EXTENSION WORK

The computer game, 'Diet', helps children understand the nutritional value of foods. Focus on the importance of a balanced diet. Whose diet is healthier? The children's or Pauline's? Children have visited the supermarket and costed out their diet and worked out how many hours the average waged person in this country would have to work to earn the money to pay for it. How does this compare with the 3 or 4 hours a day the rainforest people spend on collecting their food? The theme of food is one which children universally seem to enjoy. Teachers will very easily be able to develop their own work on this topic to fit with this teaching pack.

Activity 16

LIVING IN THE RAINFOREST

A selective cloze procedure.

Materials: Photocopy master 16, one between two. Children work in pairs.

Procedure: Each pair should be given one photocopy master to fill in which draws together the previous three activities. Children decide between them what words they think are most appropriate to fill the gaps.

Activity 17

RAINFOREST PRODUCTS

Materials: A set of cream cards for each group. Photocopy master 17a and 17b and a blank Eckert map (photocopy master 1). A World Atlas. Children work in groups of four.

Procedure: The instruction sheet is self-explanatory.

TEACHING POINTS

This activity extends children's knowledge of world geography as the children engage in the task of finding all the countries which provide us with rainforest products today; these are not always the countries of origin of all the products. This classification activity will help children develop referencing and classification skills.

NB. Strictly speaking, mahogany comes from the Caribbean and South America, but many similar timbers from other places have been called 'mahogany'. Bananas originated in South East Asia, but now they are grown throughout the tropics. Vinca is known in English as the rosy periwinkle.

EXTENSION WORK

Adam Cade, in his 'Science for Survival ' (see recommended resources) suggests an activity to help children explore the value of plants. For example the children could list 20 foods from the kitchen and underline those that are made from plants. Look at the school's musical instruments and sports equipment and find out what trees they are made from. Look in the Yellow Pages. Find 10 jobs which rely on plants.

EXTENSION WORK

CLASSROOM DISPLAY

Using a large world map children can place the rainforest product cards around the edge and use string to link them to the countries they come from. It makes an attractive display and helps reinforce the previous activity.

RAINFOREST PRODUCTS TABLE

Children could bring items from home which come from the rainforest and make a table display.

TROPICAL FRUIT SALAD

The children could bring in a variety of tropical fruits and make a display for the other classes to see. They could draw some of the fruits and find out where they come from. Supermarkets usually label their fruit with where they come from. Later they could make a tropical fruit salad to share.

GROWING RAINFOREST PLANTS

Children could grow some tropical forest plants in the school or in the school greenhouse. Avocado stones and - for some people - pineapple tops are easy to grow. Both 'Tropical Forests' by Terry Jennings and 'Science for Survival' by Adam Cade have clear instructions about how to grow plants from several regions of the tropics.

THE TAPE

The song SUPERSTORE brings children back to the Amazon and emphasises the importance of the rainforests for food. FOREST PEOPLE emphasises the harmony the Amerindians of the Amazon have with the forest.

EXTENSION WORK

SCIENCE

Children can establish that all the materials from rainforests occur naturally. They can compare these with synthetic items found in the classroom. A study of rope could compare ropes made of nylon with rope made of the natural material, sisal. What are the advantages of each? Which is stronger? Which is more flexible? What different uses are they put to? The next activity starts to explore where we get our wood from in this country. Before beginning this work it would be useful to do some background work on what has happened to our own woodlands. We begin this work by asking children to BRAINSTORM all the children's stories they can think of which have woods as part of the story. After about five minutes each group should report back to the whole class. Stories which have been passed down from generation to generation are part of our history, evidence of what life was like in the past. They are part of our oral culture and they tell us that Britain was once covered with far more woods than we have today. Part of our collective folk memory, they give us insights into the past. Today our woodlands have been replaced by new towns, new roads, factories and modern methods of farming. Our wildlife has suffered, there are 80 species of bird, 40 species of animal and 60 plant species which have disappeared in some areas all together.

TEACHERS' NOTES

Stories can provide an insight into the lives of people from different cultures. Many peoples have stories which are set in forests: it is a theme we can find all over the world. In Wales we have the Mabinogion stories, which are medieval Welsh legends. The manuscripts in which they are found are about seven hundred years old, but the tales themselves are much older, having been told in one form or another for centuries before they were ever written down. A collection of Mabinogion stories contains many involving woodlands.

It would be fun to collect these stories and other examples of stories from all over the world which feature woods and make a WOODS STORY TABLE to show in a practical way that there are universal themes in stories which unite human families. The next activity involves looking at a story which comes from Pauline's people, the Kelabit people.

Activity 18

THE GIANT

Materials: Photocopy master 18, one for each pair. Children work in pairs.

Procedure: Children cut up the different parts of the story and put them in the correct order. 'The Giant ' is a traditional story from Borneo which has been made into this sequencing exercise. The pairs then write their own ending to the story and read them to each other.

TEACHING POINT

Unlike their own stories about woods this story is not a piece of historical evidence about the past, it is a reflection of the world that rainforest children live in today. We hope it won't become just a piece of evidence about how Borneo used to be.

Activity 19

RAINFOREST DESTRUCTION

Materials: A set of red cards for each group. An instruction sheet, photocopy master 19. Children work in groups of four.

Procedure: The instructions on the cards are self-explanatory.

EXTENSION WORK

To help the children understand better the causes of the destruction of rainforests we can use the tape. Using the song THE CITY, children can understand the difficulties faced by very poor people living in the cities and shanty towns of Brazil. Many of these people have lost land to large companies to grow cash crops like soya to export to us for cattle food. They have no choice but to move to the shanty towns of the cities. The government of Brazil is planning to end poverty by expanding the economy. Their point of view is that the Amazon is full of natural resources which can be used to make Brazil rich so it can help its people. The government encourages peasants to move into the forests to farm.

The song, LIKE THE MAN FROM THE GOVERNMENT SAID, describes how the small farmers feel at the prospect of going into the rainforests and how they feel after they have

been there for a while. GIVE US OUR PAY gives the point of view of the loggers who are working in the Amazon for the large logging companies. This song and the previous two can form the basis of a dramatisation about the pressures on rainforests which will help the children understand the issues.
Teachers will need to talk through the meanings of the songs with the children and provide some back-up work.

EXTENSION WORK

SCIENCE

Big dams are being built to provide hydro-electricity in the rainforests and many other areas of the world. At this stage children could explore where energy sources in their own homes and the school come from. We do know that some of our electricity in Britain is fed into the National Grid from hydro-electricity sources in Norway.

Activity 20

PATTERNS OF DESTRUCTION

Materials: Photocopy master 20. one between two. Children work in pairs.
Procedure: This is another sequencing exercise; the children cut up the pieces of paper and put them in the right order.

TEACHERS' NOTES

Britain is the third largest importer of tropical hardwoods in the world. Before the industrial revolution woods were the economic mainstay of towns and villages in Britain: woodland industries existed which used every scrap of wood, timber, bark and foliage. The medicinal value of every herb was known, as were the ways of every bird and animal. Wood was used to make everything from tool handles and beanpoles to houses and ships. In Wales there are still men skilled in making "clocsau coed" - clogs out of wood. In the last forty years we have turned our countryside into a food and timber factory and in doing so destroyed our native woodlands. Now we turn to the rest of the world to provide us with our needs for timber. The next activity looks at where Britain gets its timber from and shows the children Britain's role in rainforest destruction.

Activity 21

THE WORLD'S WOODS

Materials: Photocopy master 21 and a blank Eckert map (photocopy master 1). An atlas or world map, one between two.
Procedure: The instructions on the worksheet are self-explanatory.

EXTENSION WORK

SCIENCE

A good activity would be to investigate the properties of these different woods. They could, for example, interview a carpenter or the local timber merchant and ask him what the differences between hardwoods and softwoods are, their advantages and disadvantages.

Activity 22

THE HAMBURGER CONNECTION

Materials: The tape included in the pack and the words of the songs. Children work as a class.
Procedure: Play the children the song BURN THEM TREES. They should have the words of the song to follow while they are listening. Then stop to discuss the song. Next play the children RUN AWAY and give them the words of the song to follow. After this divide the children into ranchers and Yanomamo and get them to devise a dramatisation of the conflict between the two groups.

Perhaps the children would enjoy devising a play to present to the rest of the school about the conflict between the tribes of the Amazon and the outside world. Lots of schools have undertaken school assemblies on this theme.

TEACHERS' NOTES

Throughout the tropics they are burning the rainforests for cattle ranches. Often they don't bother to log out the most valuable trees: they simply burn the trees and feed the cattle on the vegetation which springs up. This is contributing to the buildup of greenhouse gases as the carbon dioxide from the vegetation is released by burning.

EXTENSION WORK

SCIENCE

This experiment is designed to show children what happens and what is given off when wood is burnt. In a glass jar burn a piece of wooden splint. Place a piece of white paper over the top of the jar. You will notice that the smoke given off has turned the paper black. This is carbon.

THE TAPE

The song, FIRE gives information about the burning of the rainforests.

RELIGIOUS EDUCATION

The World Wide Fund for Nature has produced a book, 'Worlds of Difference', which looks at the different ways in which different people see the world. It looks at eight religious or belief systems and each of them tells its own story about how and why the world, and everything that lives in it, began. From the basis of the stories the authors look to see what sort of world the believer sees, and how this leads him or her to behave in certain ways. Included in the book is the belief system of the YANOMAMO, the people who are featured in the songs included with this pack. By studying the creation story of the Yanomamo the children will gain an insight into their belief that all living things in the forest came into being through original ancestors. The people have lived in complete harmony with the forest for over 20 000 years but now their way of life is under threat from the outsiders who have come to the forest.

Activity 23

A WORLD WITHOUT RAINFORESTS

Materials: A set of yellow cards for each group. An instruction sheet, photocopy master 23. Children work in groups of four.

Procedure: Give each group a set of cards and an instruction sheet. The instructions are self-explanatory.

EXTENSION WORK

THE TAPE

THE SAD LAND reflects the feelings of the rainforest people who are experiencing the destruction of their land. It could be used after the previous activity to help the children understand the feelings of the people about the destruction of the forest.

ENGLISH - A STORY TO READ

The Lorax - Dr Seuss.

This modern story of the destruction of trees by modern man is pure delight. Children from 4 to 94 love it. The language is fun and tells the story of the Onceler and how he destroyed the Truffula Trees.

ENGLISH - POETRY

The language of The Lorax and the knowledge that there are hundreds of undiscovered species of animals in the rainforests can lead to some creative writing and drawing from these two stimuli, particularly if the ideas for teaching poetry in 'On Common Ground' are developed with the children.

Activity 24

ACTION FOR CHANGE

Materials: The photograph included in the pack, photocopy master 24. Children work in pairs.

Procedure: Give out photocopy master 24, one between two. The song YANOMAMO. The photocopy master shows the views of a range of people about the development of the Amazon. The children have to match opinions about the development of the forest to the people who they think would have made the statements. They should write a newspaper article about the exploitation of the Amazonian rainforest using the photograph as an illustration. They should try and include as many opinions about the development of the forest as possible. After they have done this they should write an editorial for the newspaper in which they express their own opinions about the issue.

The final song, YANOMAMO, presents very clearly the opinion of the Yanomamo and is a great inspiration for the children and a very positive note to end on.

ACTION FOR CHANGE

It is important for children to believe they can do something about the destruction of the rainforests. One way is to help them to think globally by acting locally .

The following suggestions are starting points for children who wish to do something about the global crisis. The World Wide Fund For Nature has two campaigns to help save rainforests.

One is Korup, Africa's oldest rainforest, which was already 30 million years old when London was a forested wilderness. Korup is the richest remaining rainforest in Africa, and WWFN is working with the Cameroon government to protect the forest and maintain a sustainable way of life for the local people. You can send for a poster about Korup and find out how the children can help by raising funds. £10.00 will buy 20 trees to be planted and cared for in the plant nursery. WWFN has another campaign to save Oban, Nigeria's last great rainforest. Oban is one of Nigeria's last unspoiled rainforests and WWFN is doing all they can to keep it that way. WWFN will send a poster giving details of their campaign and how you can help.

A third campaign is to save the wildlife of Madagascar, a totally unique island with many creatures not found anywhere else in the world. The wildlife has been pushed to the edge of extinction and WWFN is fighting this conservation battle. A poster about the campaign is included in this pack. The World Wide Fund For Nature also has a Junior membership, which is only £3.00 a year. Children joining will receive a special lapel badge, a membership card, quarterly copies of WWFN News and the youth supplement - WorldWise.

CONSERVING WOODLAND

Look at woodlands in your area: can you find a wood which needs adopting? Find out who it belongs to and ask them about it, then you'll need expert advice on management which can be provided by your local countryside officer.

Or maybe you could help another organisation look after some woodland. Your local Nature Conservation Trust will have some woodland nature reserves where you could probably help. Maybe your local authority has some woodland in a Country Park or Reserve where you could assist.

TREE PLANTING

For successful results you will need expert help: a local contact would help you, try your Local Authority or your Nature Conservation Trust. (See Useful Addresses). They will help you decide what, where, when, how and why to plant. Grants are available to schools undertaking conservation work from UK 2000 (see Useful Addresses).

SAVE PAPER

Recycling paper can help: you can use recycled paper where possible. This pack has been printed on recycled paper. Perhaps you could set up a scheme to collect used paper. FoE have details of how to go about this.

SUPPORTING CONSERVATION ORGANISATIONS

There are a number of environmental organisations who are helping to conserve trees and woodland. Their addresses are listed in the Useful Addresses section, and they will be only too happy to send you information about their activities in your area. They can often provide speakers to visit schools. You could survey woodland in your area for local conservation organisations. The destruction of forests worldwide is causing great hardship for families throughout the developing world. Your school or youth group could find a project to support through an agency like Oxfam, Christian Aid or Green Deserts all of which have social forestry projects which need support. FoE have a scheme to help schools here twin with a school in Kenya to support and promote understanding of social forestry schemes. We suggest you write to these agencies for details. (Addresses in Useful Addresses Section.)

NATIONAL CURRICULUM ATTAINMENT TARGETS

The activities in this pack can help teachers meet the attainment targets through a thematic approach. Below we list the activities and the attainment targets they meet.

Activity 1 and 2
Map work
GEOGRAPHY attainment targets.

Activity 3 and 4
The Structure of the Forest
ENGLISH attainment targets, reading.

Activity 5
Life in the Rainforest
ENGLISH, reading.
SCIENCE attainment target 2
The Variety of Life levels 3,4 and 5.

Activity 6
The Living Trees
SCIENCE attainment target 3,
The Processes of Life, level 3.
Extension work suggested extends and reinforces this attainment target, also many aspects of attainment target 1 - Exploration of science.

Activity 7
Animals of the Jungle
SCIENCE attainment target 2
The Variety of Life, levels 2,3 and 4.

Activity 8
The Food Web of the Jaguar
SCIENCE attainment target 2
The Variety of Life, levels 2,3 and4.
Extension work
TECHNOLOGY - design and make a 'pop-up' rainforest.

Activity 9
Temperature Charts
SCIENCE attainment target 1
Exploration of science.
Science attainment target 2
The Variety of Life, level 3.
Attainment target 13 - Energy, level 4.
Attainment target 9 - Earth and Atmosphere, levels 3 and 4.
Extension work meets attainment target 12 - The Scientific Aspects of Information Technology including microelectronics, level 3 and 4.
Further extension work will meet Science attainment target 16 - The Earth in Space level 5.

Activity 10
Rainfall
SCIENCE attainment target 1
Exploration of science, target 2 - The Variety of Life, level 5.
Attainment target 9 Earth and Atmosphere, level 4.
Extension work TECHNOLOGY targets, design and make a raingauge.
Extension work - Science attainment target 12 - The Scientific Aspects of Information Technology and Micro-electronics, level 4.

Activity 11
The Water Cycle of the Amazon Basin
SCIENCE attainment targets 2
The Variety of Life and 9 - Earth and Atmosphere, levels 4 and 5.
Extension work will meet targets 1 - Exploration of science, and target 8 - Explaining how materials behave.

Activity 12
What have we learnt so far?
Can be used as an assessment test for GEOGRAPHY and SCIENCE.

Activity 13
ENGLISH attainment targets - media studies.

Activity 14
Making Salt in Borneo
SCIENCE attainment target 6 - Types and uses of materials, level 4.
ENGLISH attainment target - reading - a sequencing activity.

Activity 15
Using the Rainforest
ENGLISH attainment targets for speaking and listening.
SCIENCE attainment target 3 - The Process of Life, levels 3,4 and 5.
Target 6 - Types and uses of materials and target 5 - Human Influences on the Earth, levels 3,4 and 5.

Activity 16
Living in the Rainforest
ENGLISH attainment target - writing - a selective cloze procedure.

Activity 17
Rainforest Products
SCIENCE attainment target 6
Types and uses of materials, level 3.
GEOGRAPHY work.

Activity 18
The Giant
ENGLISH attainment target - reading - a sequencing exercise and writing - completing a story.

Activity 19
Rainforest Destruction
ENGLISH attainment targets - Speaking and Listening, Reading and Writing.
SCIENCE attainment target 5 -
Human Influences on the Earth, level 6.
Children can explore how big dams provide hydroelectricity in the rainforest.
Extension work - Attainment target 13 - Energy - Children can study energy sources used in their homes and schools and see where they come from.

Activity 20
Patterns of Destruction
SCIENCE attainment target 5 -
Human Influences on the Earth, level 6.
ENGLISH attainment target - reading - this is a sequencing activity.

Activity 21
The World's Woods
GEOGRAPHY activity.
SCIENCE attainment target 5
Human Influences on the Earth, level 6.
Extension work - science attainment target 6 - Types and uses of materials. Children can investigate the differences between different types of woods, their strength, hardness, flexibility and relate these to the everyday uses of the materials. What synthetic materials have replaced wood in some areas? What are the advantages and disadvantages?

Activity 22
The Hamburger Connection
ENGLISH attainment target - listening and speaking.
SCIENCE Attainment target 5 - Human Influences on the Earth.

Activity 23
A World Without Rainforests
ENGLISH targets - speaking and listening.
SCIENCE attainment target 5 -
Human influences on the Earth, level 6 and 9 - Earth and Atmosphere, level 4.

Activity 24
Action for Change
ENGLISH attainment targets - speaking and listening, reading and writing, media studies.

RECOMMENDED RESOURCES

Audio-video resources..

Included with the pack is "SONG OF THE FOREST", words by Anne Conlon, music by Peter Rose, narrated by Sting. The musical, which was commissioned by WWFN, sets out to illustrate the problems that exist in the Amazon Basin today, problems which are debated around the world. Its message is simple - the laws which demand the greatest respect and adherence are the unwritten laws which link all living things.
Further copies of this are available from the World Wide Fund for Nature.
If you wish to do a performance of all or part of the musical, "YANOMAMO" of which this tape is a part you can buy the musical manuscript from
WWFN Education Distribution,
c/o Richmond Publishing Co.Ltd,
PO Box 963,
Slough Sl2 3RX.
Telephone (02814) 3104.
The band parts are available for hire from
Josef Weinberger,
Telephone 01-580-2827 for details of hire fees.
Notice of performances must be given to the
Performing Rights Society Ltd,
29-33 Berners Street,
London W1, contact them to obtain permission for whole or part performances.

The video we recommend in the pack is Pauline of Borneo part of a video series called "TWO-WAY TICKET", produced by Yorkshire Television/UNICEF.
Available from Jeff Foster,
Yorkshire Television,
Kirkstall Road,
Leeds 3.
Price £19.95 for the programme or £29.95 for the whole series which includes programmes on an Arctic Child (which accompanies our pack of the same name), A Mountain Child (set in the Andes; a pack on this will be published in 1990), A River Child (about Bangladesh), A Desert Child (set in Mauritania), and An Island Child (set in Eriskay).

For teachers

Norman Myers
The Primary Source - Tropical Forests and our Future
(Norton, 1985).
Looks at the complexity and diversity of rainforests, why we are losing them, who to and where. Myers offers a blueprint for solutions.

Judith Gradwohl and Russell Greenberg
Saving the Tropical Forests
(Earthscan Publications, 1988).
This book provides a vision of hope as people at the grassroots develop techniques to promote the wise use and preservation of the remaining forest lands.

Catherine Caulfield
In the Rainforest
(Picador, 1985).
Extremely wide ranging, looks at the fate of the rainforests worldwide.

Stephen Croall
Ecology for Beginners
(Writers and Readers, 1986).
Excellent, cartoon-style, illustrating the basics of climate, agriculture, pollution, energy and deforestation.

Richard North
The Real Cost
(Chatto and Windus, 1986).
31 Everyday objects and their real cost in terms of exploitation or depletion of resources. Chapter 11 is on hamburgers and rainforests and chapter 17 on packaging and firewood.

Lloyd Timberlake
Only One Earth: Living for the Future
(Earthscan, 1987).
A series of case studies on contemporary development issues. Chapter 2 is on the destruction of rainforests in Panama.

Charles Secrett
Rainforests
(Friends of the Earth, 1986).
Comprehensive account of the destruction of the world's tropical forests.

Francois Nectoux
Timber: An Investigation of the UK Tropical Timber Industry
(Friends of the Earth, 1985).
How tropical rainforest timbers are used in Britain and how rich countries influence tropical forest exploitation.

Minority Rights Group Report No.15, 1987
The Amerindians of South America
(Minority Rights Group.)
Threats facing Amerindians today through the voices of the people themselves.

New Internationalist, No.184, June 1988
"Tree of Life: Stop the Chainsaw Massacre"
A special issue on trees and forests

The Ecologist, Vol.17 No4/5 July/November 1987
"Save the Forests: Save the Planet", A Plan for Action
Available from Whitehay, Withiel, Bodmin, Cornwall, PL30 5NQ.

Simon Fisher and David Hicks
Teaching Resources
World Studies 8-13,
(Oliver and Boyd, 1986).
Contains a wealth of ideas for active learning. Gives a description of brainstorming and many ideas for group work.

David Hicks and Miriam Steiner
Making Global Connections - A World Studies Workbook
(Oliver and Boyd, 1989).
This books refines and advances the theory and practice of World Studies. It includes 6 practical chapters of ideas for using in the classroom including a chapter by Sue Lyle.

Sue Greig, David Selby and Graham Pike
Forest Environments.
Earthrights: Education as if the Planet Really Mattered
(World Wide Fund for Nature/Kogan Page, 1987).
Visionary and practical. Illuminates the links between environmental and development issues and student-centred learning. By the same authors, Global Teacher/Global Learner a handbook for teachers crammed with ideas.

Catharine Mcfarlane,
Themework
Hidden Messages
A Sense of School
(DEC, Birmingham, 1986).
These three books are practical, easy to use and full of excellent ideas for organising groupwork, planning themework and developing in-service activities in schools. Available from DEC (see address list).

Sue Lyle and Maggy Roberts
Tomorrow's Woods
(Greenlight Publications, 1987).
An active learning pack on woodlands in Britain which explores the destruction of our ancient woodlands and their replacement with coniferous plantations. Further activities take a look at forests worldwide.

Sue Lyle and Maggy Roberts
An Arctic Child
(Greenlight Publications, 1988).
An active learning pack on the Arctic which develops science, geography and linguistic skills to examine the impact of the developed world on the ecosystem of the Arctic and its people.

Animals to Make
(World Wide Fund for Nature/Scholastic Publications, 1985).
Useful for art and craft ideas on forests and their wildlife.

Making Salt
Third World Science Project - (See useful addresses).
Accounts of how people all over the world make salt.

H.B. Joicey
An Eye on the Environment
(World Wildlife Fund 1987).
Excellent ideas for art work.

Jill Pirrie
On Common Ground - A Programme for Teaching Poetry
(Hodder and Stoughton/World Wildlife Fund, 1987).
A teacher's account of how she teaches poetry. She argues that all children have a natural affinity with poetry and can produce thoughtful and perceptive work.

For Children

Martin Palmer and Esther Bisset
Worlds of Difference
(World Wide Fund for Nature, 1985).
For ages 11-14. Chapter 9 is on the beliefs of the Yanomamo and how these determine the way in which they live in harmony with the rainforest.

Adam Cade
Science for Survival
(Richmond Publishing/World Wide Fund for Nature, 1987).
Full of science activities for learning about rainforests. Aimed at the 12-16 age range, but many ideas can be adapted for younger children.

Andrew Langley
Jungles
(Wayland, 1986).
Suitable for the 8-11 age group.
Gives a general introduction to rainforests and the animals, plants and people who live in them.

Theodore Rowland-Entwistle
Jungles and Rainforests
(Wayland, 1987).
Aimed at the 12-16 age group. Describes different types of rainforest, their diversity of wildlife and why we must preserve them.

Terry Jennings
The Young Geographer Investigates Series.
Tropical Forests and Temperate Forests
(Oxford University Press, 1986).
Suitable for the 8-13 age range.
Useful suggestions for extension work in Science.

Dr Seuss
The Lorax,
(Collins, 1984).
A modern story of the destruction of trees by one species. A must.

Theodore Rowland-Entwistle
One World: Jungles and Rainforests
(Wayland, 1987).
Suitable for the 11-13 age range. Very good for extending children's knowledge of the diversity of rainforests and their flora and fauna.

USEFUL ADDRESSES

GLOBAL EDUCATION PROJECT
Global Futures Centre,
Maenllwyd,
Llangynog,
Carmarthen,
Dyfed SA33 5JA. Telephone (026782) 278.
For details of INSET based around this pack and others contact Sue Lyle.

GREENLIGHT PUBLICATIONS
Ty Bryn,
Coomb Gardens,
Llangynog, Carmarthen,
Dyfed SA33 5AY. Telephone (026783) 332.
Contact Maggy Roberts for details of publications.

NADEC,
National Association of Development Education Centres,
6 Endsleigh Street,
London WC1H ODX. Telephone 01-388-2670.
Contact Sandy Henderson. (Please ask for the address of your local Development Education Centre).

DEC, Birmingham,
Gillet Centre, Selly Oak Colleges,
Birmingham.

WORLD WIDE FUND FOR NATURE
11-13 Ockford Road,
Godalming,
Surrey GE7 1QU.

FRIENDS OF THE EARTH
26-28 Underwood Street, London N1 7JQ.

COUNCIL FOR ENVIRONMENTAL EDUCATION,
School of Education,
London Road,
Reading, Berkshire.

OXFAM,
274 Banbury Road,
Oxford OX2 7DZ.

CHRISTIAN AID
P.O. Box No 1,
London SW9 8BH.

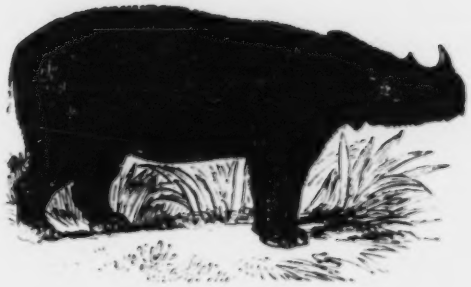
THIRD WORLD SCIENCE PROJECT
School of Education, University College of North Wales,
Bangor,
Gwynedd.

GREENPEACE ENVIRONMENTAL TRUST,
36 Graham Street,
London N1 8LL.

MINORITY RIGHTS GROUP.
29 Craven Road,
London WC2N 5NT.

SURVIVAL INTERNATIONAL
310, Edgware Road,
London W2DY.

INTERNATIONAL BROADCASTING TRUST.
2, Ferdinand Place,
London NW1 8EE.



Greenlight Publications
ISBN 0 9512455 2 X

A RAINFOREST CHILD

An Active Learning Pack for 8-13year olds

Lyle and Roberts

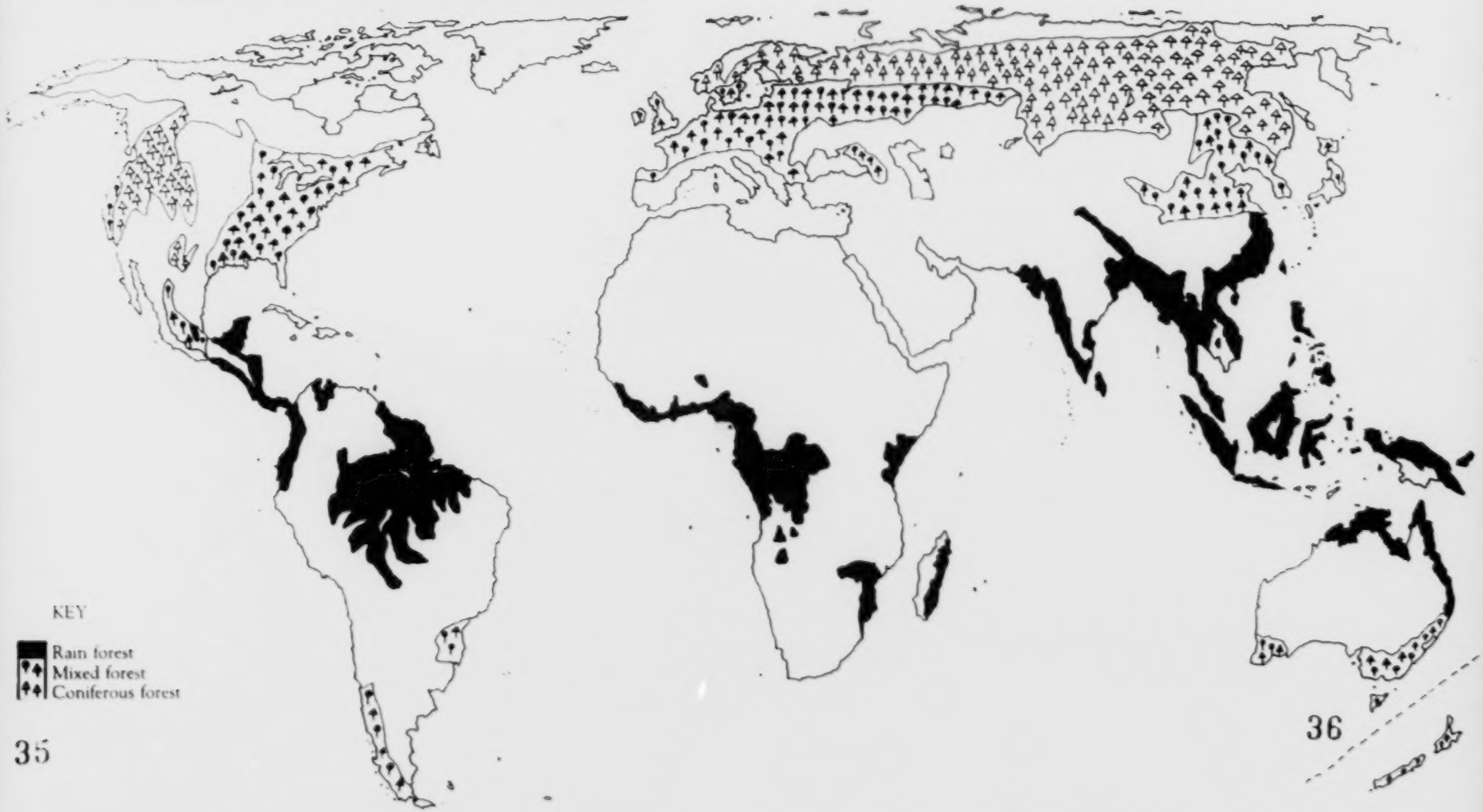
MAP WORK

Eckert Map.

ACTIVITY 1
Photocopy master 1

ACTIVITY 2
Photocopy master 2

MAPPING THE FORESTS



ACTIVITY 5
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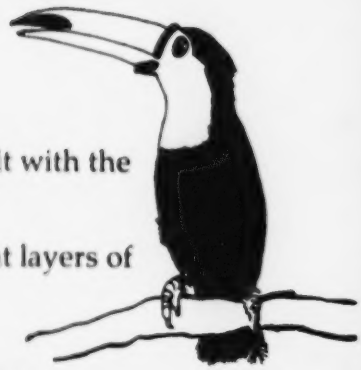
LIFE IN THE RAINFOREST



When you have finished your drawing of the rainforest compare it with the drawing your teacher will show you.
Check your drawing and add anything you may have left off.
Read the description of the rainforest below and label the different layers of forest like this:

EMERGENT LAYER
CANOPY
UNDERSTOREY
FLOOR

THE RAINFOREST

The tallest rainforest trees are called the emergents. They get the most sunlight and the crowns of branches spread out well above the other trees. In the middle is the main level of the forest, the canopy. Under the canopy are smaller trees, shrubs, plants and flowers. On the floor of the understorey there are seedlings, herbs, plants and a layer of dead and rotting vegetation.

SOME INTERESTING FACTS

The life of the forest is very rich: in one acre of forest you could find over a hundred different kinds of trees (Britain has only 35 native trees). In the same acre you might find over 40,000 different species of animals, birds and insects. Did you know that tropical rainforests contain half of all growing wood on earth and at least half of the earth's plants and animals! So far scientists have identified less than 1 in 6 of their two million species. If you were to go into a tract of forest with a net, you would need only a few hours to catch an insect not yet known to science (and be named after you!).

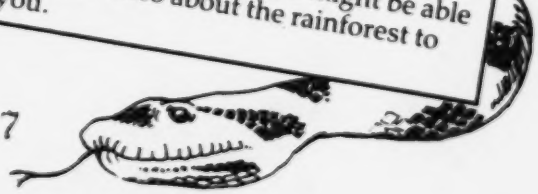
THE ANIMALS, BIRDS, PLANTS AND INSECTS

In the different layers of the forest are thousands of different creatures living interdependently with each other and the trees and plants. In the emergent layer live a variety of birds and animals including large eagles who eat monkeys which they catch from the canopy. In Borneo the orang-utan lives alongside many other monkeys, many kinds of birds, bats, tree frogs, lizards and millions of insects, especially butterflies and bees. In the understorey you will find moths, beetles, lizards and frogs as well as insects like ants and termites. On the forest floor you find deer, wild pigs and tapirs feeding on fruits, nuts and vegetables.

FOREST SOILS

When you think of all the thousands of different trees and plants which grow in the rainforest it seems that the soils they grow in must be very fertile. In fact they are not fertile, they are very poor. If the forest is cleared to grow crops the soil is completely worn out in three to five years. This is because all the fertility is in the trees themselves and without them the soil turns into desert.

Now we are going to make a wall frieze to show the layers of trees and the plants in the rainforest. You can experiment with all sorts of ideas, find books to help you decide what animals to put in your rainforest frieze, perhaps you might be able to watch a video about the rainforest to help you.



ACTIVITY 6

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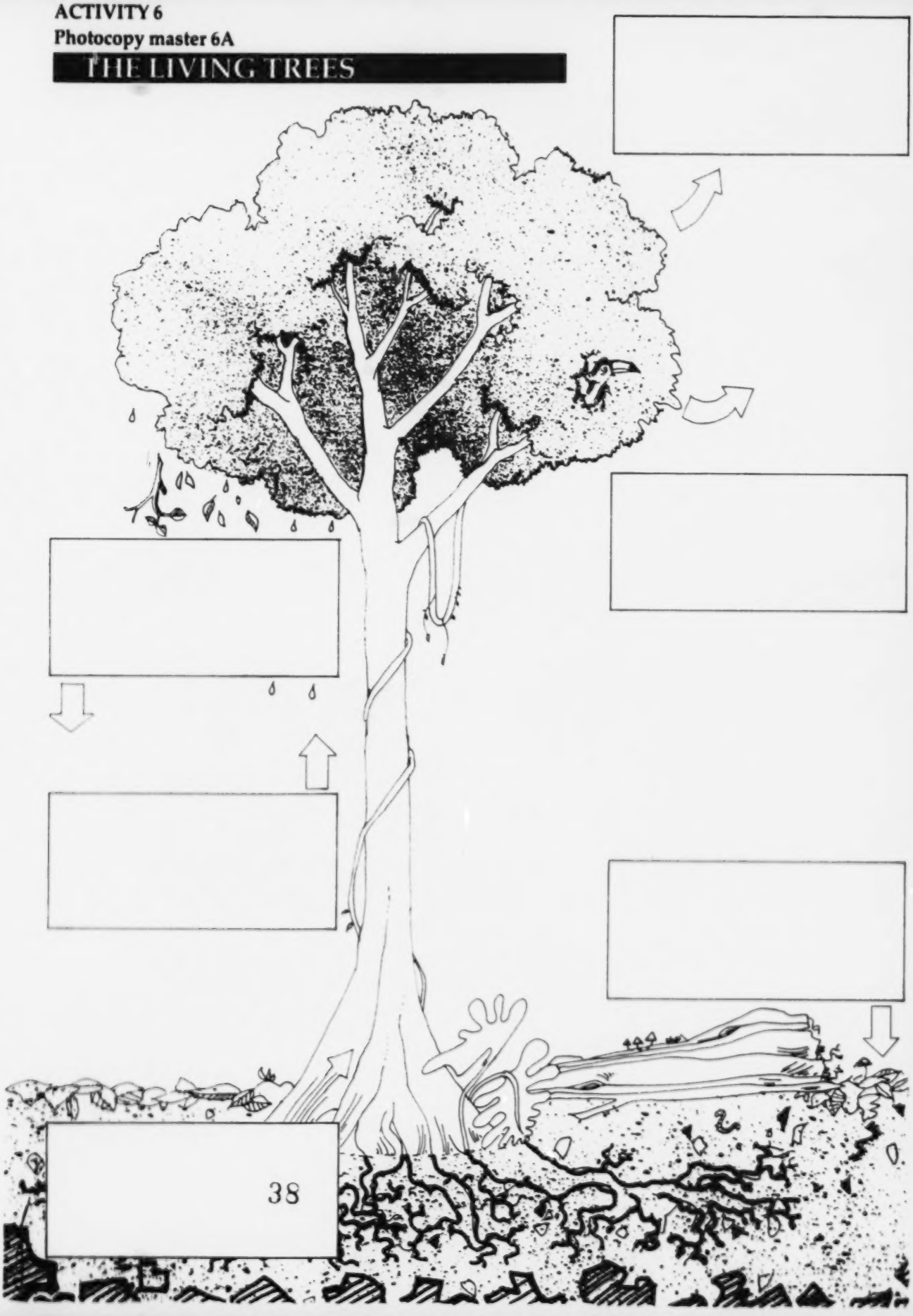
THE LIVING TREES



ACTIVITY 6

Photocopy master 6B

THE LIVING TREES

The water cycle of a tree

Water from the trees creates clouds which take rain inland.
The roots absorb water and dissolved mineral salts.
The leaves of the trees release water which evaporates into the atmosphere. This is called EVAPOTRANSPIRATION.
Rainwater collects nutrients (dead insects, animal faeces) from the rainforest canopy.
The water travels quickly up the trunk of the tree to all parts of the tree.
Rainwater arrives on the ground and filters through the decaying vegetation on the forest floor.

The food cycle of the tree

In the soil decomposers (insects, worms, bacteria and fungi) turn the decaying plants and animals into mineral salts.
The leaves use sunlight energy to make food from carbon dioxide (CO_2) and water (H_2O) and give out oxygen (O_2). This is called PHOTOSYNTHESIS.
The roots of the trees take mineral salts from the soil as food for the living trees.
The food made in the leaves from sunlight and the food taken from the soil are used by all parts of the tree.
The trees provide food for the huge variety of wildlife found in the canopy and protect the soil from the sun and rain.
Dead animals, leaves and twigs fall to the forest floor.

ACTIVITY 7
Photocopy master 7

ANIMALS OF THE JUNGLE
Instruction Sheet

The animals on these cards all live in the Amazon. They are only a few of the thousands of animals which live there.
Read the cards, look at the pictures and then :-

TASK 1
Sort the cards into 5 piles,

MAMMALS
Have hair or fur.
Give birth to live babies(not eggs).
Take care of their babies.
Suckle their young with milk.

REPTILES
Have scaly skin.
Lay eggs.
Depend on the heat of the sun for warmth.

FISH
Live in water.
Lay eggs.
Breathe through gills.

BIRDS
Have feathers.
Lay eggs, which they sit on to keep warm.
Have bills or beaks suited to the food they eat.

INVERTEBRATES
Have no backbone.
Includes beetles, butterflies and spiders.
Have segmented bodies and more than four legs.

Shuffle up the cards again.

TASK 2
Now sort the cards into 3 piles like this showing where the animals live in the forest.

Animals which live in the canopy and emergent layer.

Animals which live in the leaf litter of the forest floor.

Animals which live in the rivers and streams.

If the card doesn't say where the animal lives, see if you can work it out.

Shuffle up the cards again.

TASK 3
Now can you sort the cards into 2 piles showing what the animals eat.

CARNIVOROUS (they eat meat).

HERBIVOROUS (they eat leaves, grass, fruit and berries)

ACTIVITY 8
Photocopy master 8A

THE FOOD WEB OF THE JAGUAR

_ _ _ _ _ _. My spotted coat hides me in the forest. I eat almost anything but my diet includes capybaras, peccaries, sloths, anteaters, monkeys and piranha. I live on my own, climbing trees and swimming to catch my prey.

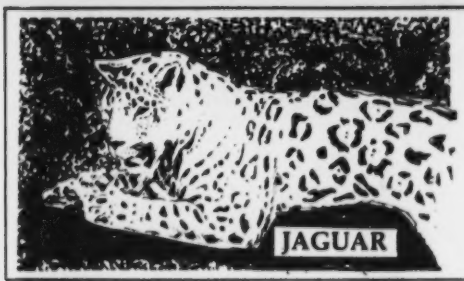
_ _ _ _ _ _ _ _ _. We are small pigs. We run fast to escape our enemies, we can be very fierce in groups. We eat fruit, berries, bulbs, grubs, small vertebrates and snakes.

_ _ _ _. Eating the fruits of the forest trees and living in burrows along riverbanks, the paca must be careful of the piranhas in the water.

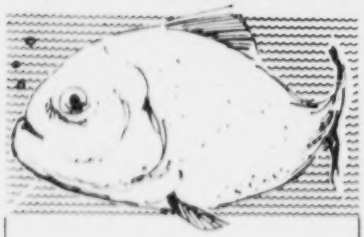
_ _ _ _ _ _ _ _ _

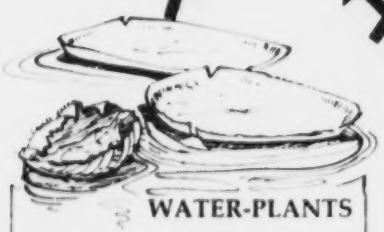
ACTIVITY 8
Photocopy master 8B

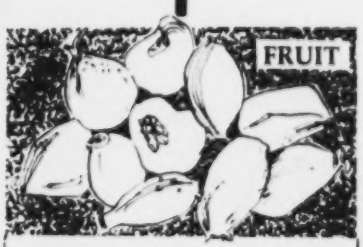
THE FOOD WEB OF THE JAGUAR



RED PIRANHA



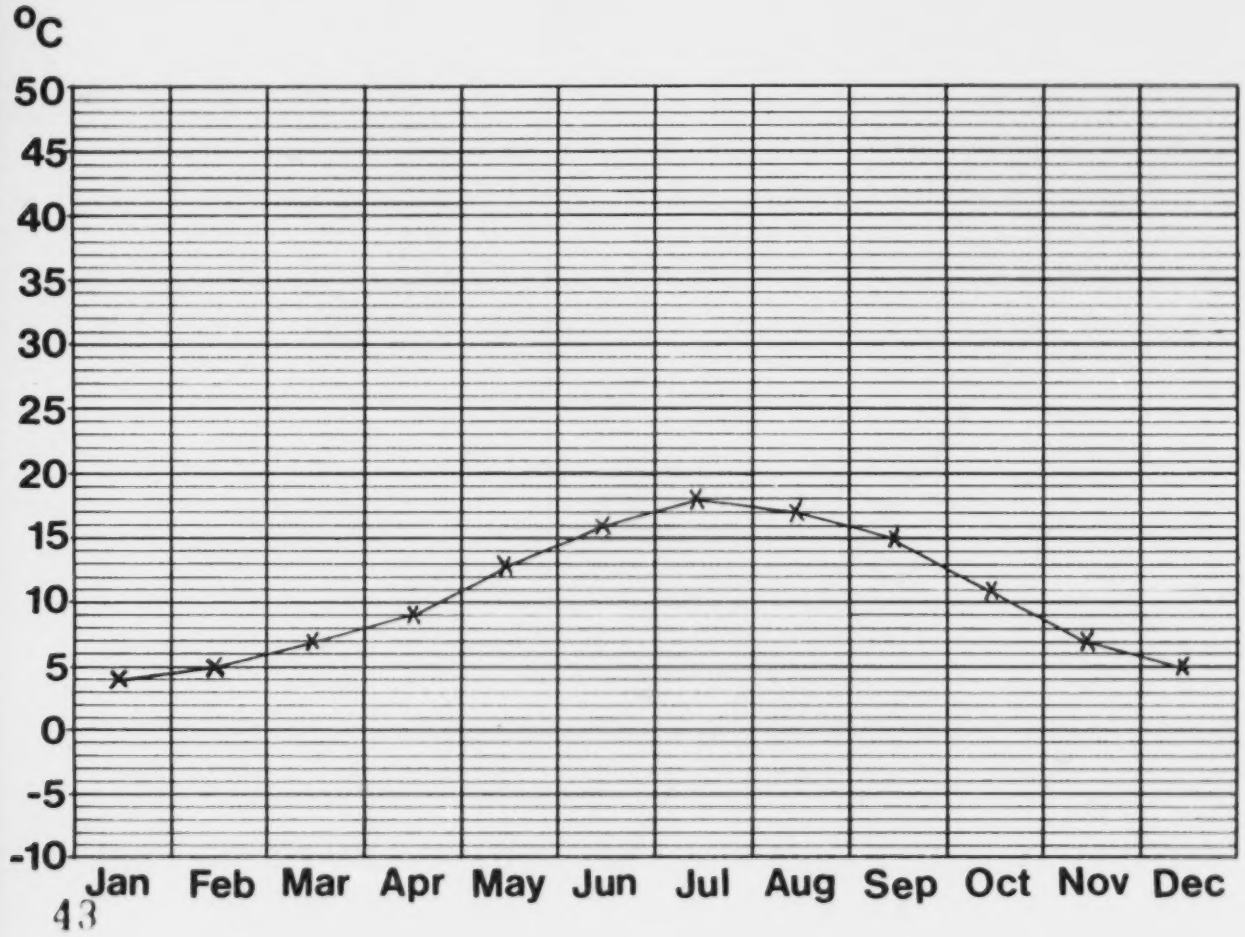




ACTIVITY 9
Photocopy master 9B

TEMPERATURE CHARTS

LONDON



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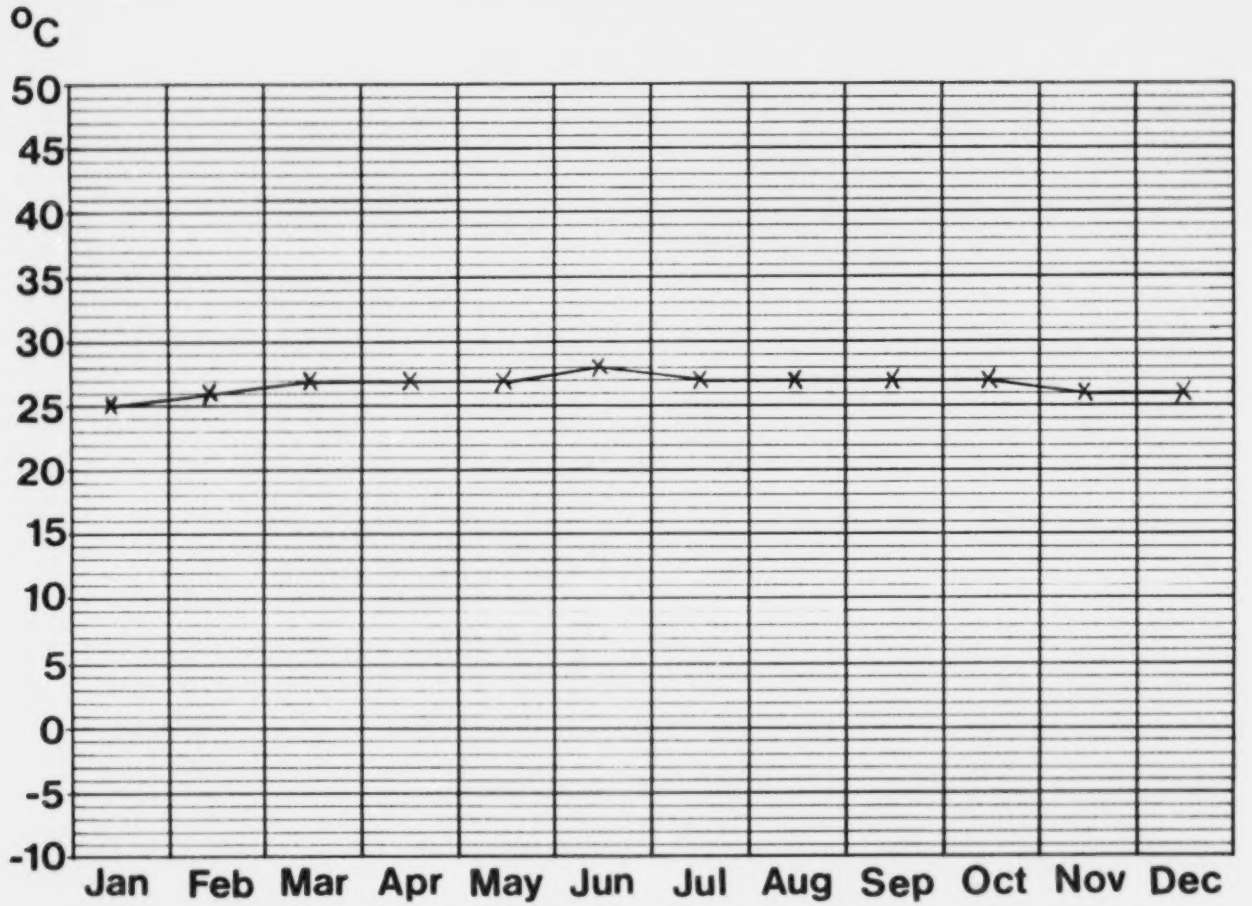
ACTIVITY 9

Photocopy master 9A

TEMPERATURE CHARTS

SARAWAK



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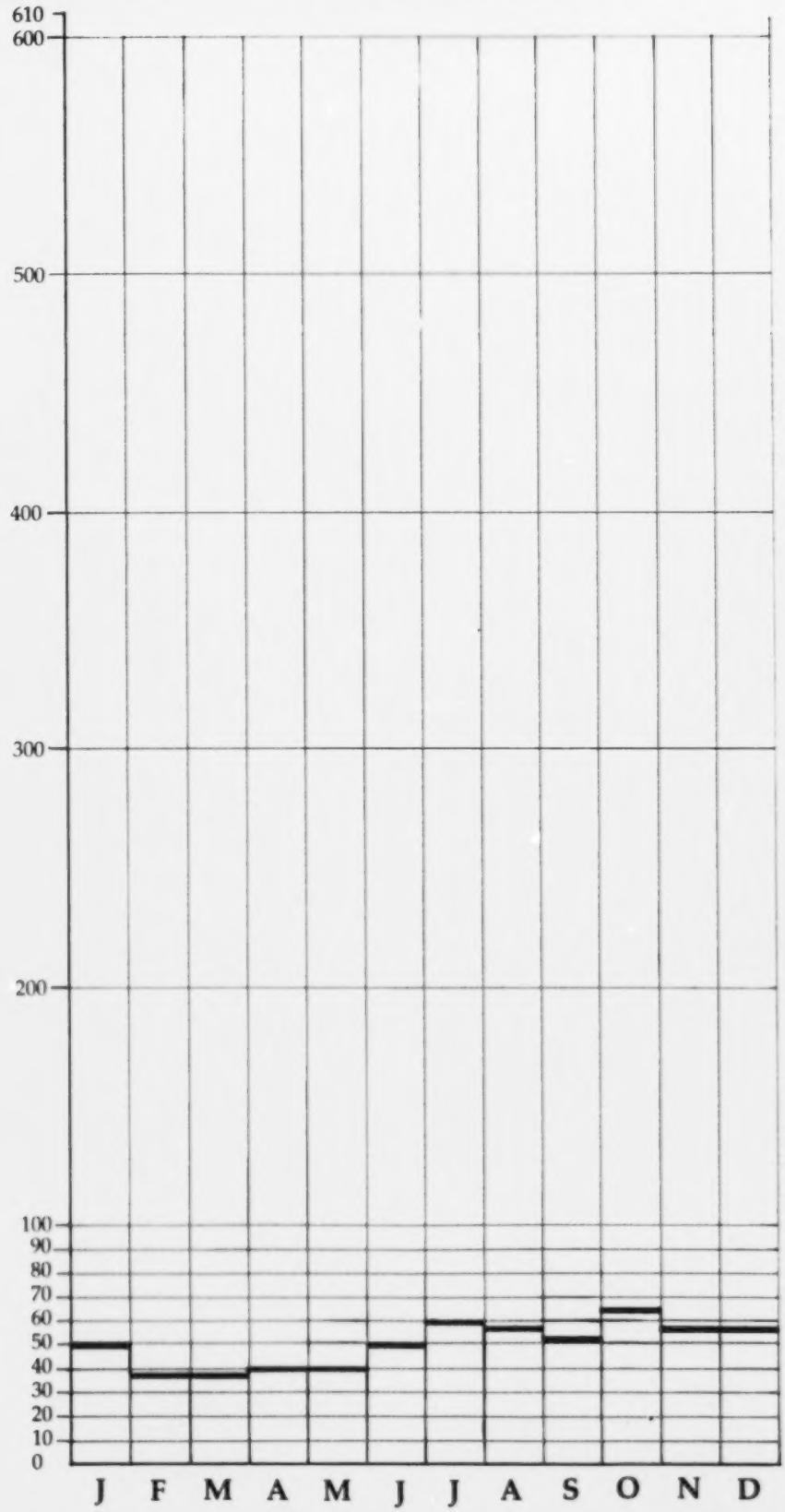
Photocopy master 10A

RAINFALL

Scale : 10 mm of rain – 4 mm on the barchart.

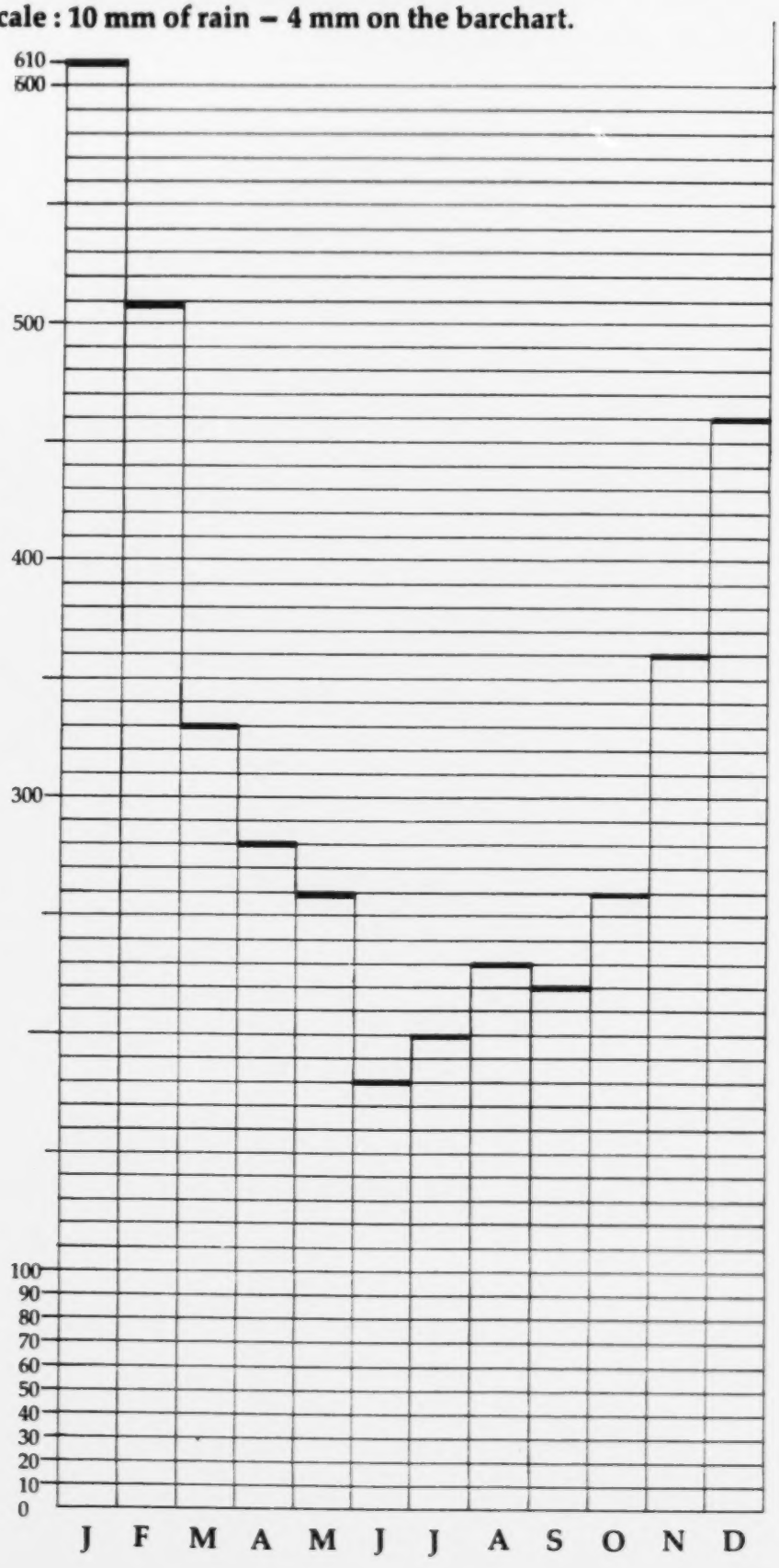


LONDON (G.B.)
Rainfall in mm.

JAN	
FEB	
MAR	
APR	
MAY	
JUN	
JUL	
AUG	
SEP	
OCT	
NOV	
DEC	

RAINFALL

Scale : 10 mm of rain – 4 mm on the barchart.



SARAWAK (BORNEO)

Rainfall in mm.

JAN	
FEB	
MAR	
APR	
MAY	
JUN	
JUL	
AUG	
SEP	
OCT	
NOV	
DEC	

ACTIVITY 11
Photocopy master 11

THE WATER CYCLE OF THE AMAZON BASIN

Read the description of the water cycle of the Amazon Basin and draw a diagram to show how the cycle works. Use the descriptions to label your diagram.

When the sun shines on the Atlantic ocean some of the water evaporates and makes clouds. At the same time the air above the warmed land rises, causing breezes which carry the clouds inland from the sea.

On reaching the forest, the clouds fall as rain. The roots of the trees take in the water that the trees need and it travels up through the trunks into the leaves.

Evaporation from the leaves makes new clouds which blow further inland to cause rain in another part of the forest.

When the last clouds reach the high Andes mountains, they fall as snow or rain making the glaciers lakes and springs which flow into the River Amazon.

Gathering surplus water from the ground as it goes, the River Amazon flows 4,000 miles back into the Atlantic Ocean.

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Photocopy master 11

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Photocopy master 4

DRAWING THE FOREST

ACTIVITY 12
Photocopy master 12

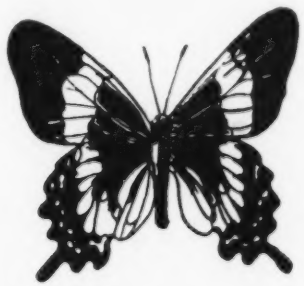
WHAT HAVE WE LEARNT SO FAR ?

See if you can answer the following questions:

1 In what part of the world do we find tropical rainforests?
2 How many seasons are there in the tropical rainforest?
3 How do you know the answer to the last question?
4 What are the three distinct layers of trees in the rainforest called?
5 What percentage of the world's animals live in the rainforest?
6 Can you name three things from the rainforest which we use every day?

Now choose 5 of the following 10 sentences which give an accurate description of the rainforest.
Copy them into your books.

1 Every day it is hot.
2 The weather in the rainforest changes every season.
3 The trees lose their leaves once a year.
4 It rains almost every day.
5 Rainforests can be found in Europe.
6 The trees are always green and always growing.
7 Few animals and birds live in these hot, wet forests.
8 The plants have beautiful flowers once a year.
9 Many birds, animals and insects live in the rainforest.
10 Rainforests are only found in the tropics.



ACTIVITY 17
Photocopy master 17A

RAINFOREST PRODUCTS

TASK 1

You will need:
AN ATLAS
A BLANK MAP OF THE WORLD
A SET OF RAIN FOREST PRODUCT CARDS

Deal out the cards between you.
Take it in turns to read a card and find the place that the product comes from in the atlas.
Write the name of the place and the product on your blank map of the world.
WHAT DO YOU NOTICE?
Write a sentence beginning, "When I look at the rain forest product cards on the world map I notice....."

TASK 2

This activity will help you learn how to classify things, which is very useful if you want to look things up in a book.
Deal out the cards between you again and classify them into 7 different groups.
When you have done this turn the piles over so you can't see them and ask for a RAIN FOREST PRODUCTS CHECKLIST.

TASK 3

Fill in the checklist by ticking the right boxes.
Do not look at the product cards unless you need to check what classification one of the products comes under.

ACTIVITY 13
Photocopy master 13

WHERE DO OUR IMAGES COME FROM ?

SECTION A.
How important is it?

	Very important.	Important.	Not important.
Television			
Radio			
Newspapers			
Comics			
Parents			
Teachers			
Books			
School text books			
Films			
Advertisments			
Friends			
Any others			

SECTION B.
How reliable is it?

	Very reliable	Reliable	Not reliable
Television			
Radio			
Newspapers			
Comics			
Parents			
Teachers			
Books			
School text books			
Films			
Advertisments			
Friends			
Any others			

ACTIVITY 14
Photocopy master 14

MAKING SALT IN BORNEO

My father cuts bamboo from the forest and then we scoop the salt into the hollow bamboo.

It's important to keep the fires going. It takes hours and hours for the water to boil away.

To use the salt we unwrap it and take the black soot off and then we scrape the salt we need off.

We put the sticks of bamboo full of salt into the fire.

We light a big fire underneath the pan.

First of all we fetch salt water from the well in the forest. We carry the water in big oil drums.

The fire burns the bamboo away and leaves a solid stick of salt.

After the water has boiled away there is a salty sludge left in the pans.

We take the drums of salt water home and fill up large pans with the water.

Then we wrap the sticks of salt neatly in a leaf we find in the forest.

ACTIVITY 3
Photocopy master 3

THE STRUCTURE OF THE FOREST

The Trees

Read the description of the trees in the rainforest below and use it to help you draw a picture to show the different layers of trees and plants in the forest.

At the top of the rainforest a few trees, up to 70 metres tall, stand high above all the others. All the trees have long, thin trunks, with huge crowns of branches spread out at the top like umbrellas.

In the middle layer the tops of the trees are very close to each other and their branches overlap to form a thick canopy like a roof over the forest. This canopy stops most of the sun's light from getting inside the forest. The trees in this layer are about 30-40 metres high.

Inside the rainforest it is dark and damp. All trees and plants need sunlight so they can grow, and it is very difficult for trees and plants to grow under the canopy with so little light shining through. This means there is only a thin layer of young trees in the forest below the canopy growing up to 20 metres high. Some of these are climbing vines which grow on, up and around the main trees, holding everything together.

The floor of the forest is covered with a layer of decaying leaves, and most of the plants here are ferns, mosses and fungi.

ACTIVITY 15
Photocopy master 15A

USING THE RAINFOREST

Work in groups of four.

You will be given a set of cards.
Shuffle them and deal out the cards between you.
Take it in turns to read them.
Divide them into *two piles* like this:-

PILE A	PILE B
The ways in which local people get all they need from the forest.	**The ways in which people from other countries use the products of the rainforests.**

Read through the cards in PILE A and find all the ones which tell you about the things that rainforest people eat.

Then ask for the sheet called **diet** and fill it in.

ACTIVITY 15
Photocopy master 15B

USING THE RAINFOREST

Diet

Using the food cards you have sorted out from on *Pile A* fill in this *Diet* sheet.

What did they eat & drink?	**Where did they get it from?**	**What did it cost in money or work?**	**What type of food? Is it fresh, frozen, meat, vegetables, etc.**

When you have finished doing this turn over the paper.
Do the same thing again; only this time in the column marked *What did they eat and drink?* write down everything *your group* has eaten in the last 24 hours.

Then write a paragraph which begins:

When I compare our diet sheet with Pauline's family I notice that.....

ACTIVITY 16
Photocopy master 16

LIVING IN THE RAINFOREST

Read the passage below.

Fill in the gaps with a word that you think makes sense.

To survive in the _____ , the Kelabit people have learned ____ make use of all _____ have.

Trees are _____ to build houses, fences and _____ .

Bamboo is cut down and _____ into cups, storage jars and fishing _____ .

Many vegetables _____ wild in the forest which _____ collect and eat,such as _____ , ferns and bamboo shoots.

Many _____ types of fruit grow _____ the rainforest for people to _____ .

There are lots of _____ insects in the forest, _____ of them are eaten by _____ people.

There are salt springs _____ the forest and people _____ water from the springs to _____ down and make into _____ .

Leaves from shrubs and _____ are used for medicines, _____ , weaving mats and baskets, for wrapping _____ and food.

Vines are used for _____ parcels and making nets.

Some of the _____ give resin which can be used as firelighters to _____ fires for cooking.

ACTIVITY 17
Photocopy master 17B

RAINFOREST PRODUCTS

Rainforest Products Checklist.

PRODUCT	Gums & Resins	Spices	Plants	Food	Timber	Medicines	Oils
Rattans							
Chicle							
Cocoa							
Bamboo							
Rubber							
Ylang-Ylang							
Swiss Cheese Plant							
Bananas							
Orchids							
Pepper							
Copals							
Mahogany							
Mother-in-law's tongue							
Curare							
Lime							
Mango							
Cloves							
Balsa							
Vanilla							
Castor Oil							
Vinca							
Cinchona							
Mace and Nutmeg							
Palm Oil							

ACTIVITY 18
Photocopy master 18

THE GIANT

A long time ago, there was a girl and a boy. They were brother and sister. Their father used to go hunting. There was a very large bird in that country.

Their mother told the brother and sister: "Don't go out of the house. There's a huge bird who'll eat you." And the girl and boy answered: "Even if we go out of the house, we won't go far."

One day, their father went out hunting and their mother went to collect wood. The children went out to play. They bird flew over them, and swooped down, picked them up in its beak, and flew away.

They searched and searched. Then they came to a house. They looked in through the window. "Look", said the boy, "there's a giant inside".

There was nothing they could do about it, so they said: "Why don't we jump down from the tree, because we're already half way down?"

The boy asked his sister how they could climb down the tree. "Don't worry", she said. "We've got our clothing. We can tear it into strips and join them together and make a rope."

62

They set off through the forest; after a while they realised they were very far from home. They did not know where to go, or where their house was.

The bird flew towards a very tall tree. It was the tallest of all the trees in the forest. The bird dropped them onto the top of the tree, and flew away.

So they joined the strips and made a rope. The girl let the rope down the tree, and she and her brother began to slide down. But the rope did not reach the ground.

As they jumped, the rope came adrift from the tree and helped them to float slowly down.

63

How do you think that the story ends?

ACTIVITY 19
Photocopy master 19

RAINFOREST DESTRUCTION

TASK 1

There are 15 cards which can be matched into 5 sets of 3.
Each set will have one illustration, one heading and one written description.
Shuffle the cards and deal them out between you.
Lay your cards out in front of you and take it in turns to read out the descriptions.
Whilst the descriptions are being read out you should look at the cards to find the illustration and heading to match the descriptions.

TASK 2

Each set of cards tells you one *THREAT* to the rainforests and one *CONSEQUENCE* of this threat to the rainforests.
Working on your own put two headings like the ones below and using the information on the cards write short sentences for each of the 5 sets.

THREATS	CONSEQUENCES

TASK 3
Work in groups of four. Shuffle the cards well and deal them out.
Each of you lay your cards out in front of you.
The object of the game is for each of you to end up with at least ONE set of cards complete.
RULES No-one is allowed to talk.
You are allowed to pass cards only to the person on either side of you.
You are NOT allowed to take the cards from anyone.
When all the sets are complete the game is over.

TASK 4.
RAINFOREST RUMMY
Work in groups of four.
Ask your teacher for another set of cards.
Shuffle both sets of cards well and deal out four cards to each player.
The rest of the cards should be placed face down on the table.
The top card should be turned over.
Taking it in turns each player picks up one card either from the cards face down or the cards turned over.
They should discard the card they don't want.
The object of the game is for each player to get as many sets of 3 as possible, i.e. one heading, one diagram, and one description.
The game is over when one player has collected 3 sets.

ACTIVITY 20
Photocopy master 20

PATTERNS OF DESTRUCTION

The following statements describe the typical stages in the destruction of the rainforest in South America. Cut them out, read them through and put them into the right order.

After one of two crops of maize, rice or manioc the soil becomes very poor and the people growing the food are forced to leave the land and move to another area of the forest and start clearing the land for farming again.

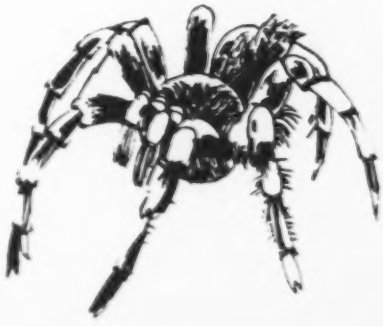
The final stage in the destruction of the forests leaves the land turned to desert where nothing will grow: a miracle of nature which took over 60 million years to evolve is turned into desert in just a few years.

The cattle ranchers take over from the small farmers; the land will support beef cattle for another five to ten years. After that the soil is useless for anything and the cattle ranchers move on.

The rainforests of South America are being destroyed by loggers, small farmers and ending as beef for American hamburgers. This activity will tell you how it happens.

Once the roads have been built people who have no land and no jobs can move into the forests and clear and burn the vegetation to plant crops like corn, beans, rice and manioc. In this way very poor people can grow food to feed their families.

The first stage in the destruction is the arrival of the logging companies who want to cut down the valuable hardwoods like mahogany, teak and rosewood to sell to countries like Britain to make furniture and buildings from. They build roads into the forest which opens up the forest to others.



ACTIVITY
Photocopy master 21

THE WORLD'S WOODS

Work in pairs.
You will each be given an outline map of the world and an Atlas to share.
Below are a list of woods we regularly import to Britain from other countries.
Look up the countries in the Atlas and mark the names of the wood they export to Britain on the right place on the map.

LIST OF WOODS MOST COMMONLY IMPORTED INTO BRITAIN.

WOOD	COUNTRY	NORMAL USE OF WOOD
Abura	West Africa	Skirting boards
Afrormosia	West Africa	Outside of buildings
Ash	U.S.A.	Furniture
Beech	Europe	Flooring, furniture
Greenheart	Guyana	Building
Jelutong	South East Asia	New buildings inside
Kauvula	Fiji	Furniture
Mahogany	Brazil	Tables and chairs
Mahogany	West Africa	TV/Video cabinets
Meranti	South East Asia	Bookcases and shelves
Merbau	Malaysia	Furniture
Oak	Japan	Kitchen Units
Obeche	West Africa	Picture frames
Parana pine	South America	Kitchen furniture
Ramin	South East Asia	Internal door frames
Rosewood	India	Living room furniture
Sapele	West Africa	Wall units
Teak	Burma	Tables and chairs
Teak	Thailand	Cabinets
Utile	West Africa	Useful for all purposes
Virola	South America	Coffee tables
Walnut	Europe	Living room furniture
Western red cedar	Canada	Garden sheds
Whitewood	Scandinavia	Wooden floors
Whitewood	Russia	Doors and window frames

Now draw two columns labelled **TEMPERATE / TROPICAL** and in each column list the woods from the list according to whether they are from temperate or tropical parts of the world.

ACTIVITY 23
Photocopy master 23

A WORLD WITHOUT RAINFORESTS

The world's tropical rainforests are in great danger: by the time you have finished reading this page an area of rainforest the size of 100 football pitches will have been damaged or destroyed.
We know why the forests are being cut down. This activity will help you find out what will happen to the world if all the world's rainforests disappear.
If man does not stop cutting down the trees then they may all be gone by the year 2000.
Even now every day several species of wild animal, plant or insect become extinct.
The cutting down of the trees in the rainforest is called *Deforestation*

TASK 1
You will have been given a set of DEFORESTATION CARDS :
shuffle them and deal them out between you.
Taking it in turns to read them sort the cards into 2 piles like this:

PILE 1
How deforestation affects the people, plants and animals who live in or near the rainforest.

Pile 2
How deforestation affects the planet.

TASK 2
Look at the cards in Pile 2 again.
Have you got 9?
If not have another look at the cards and see if any belong with Pile 1 and check Pile 1 to make sure none of the cards in that pile should be in Pile 2. When you have 9 cards arrange them in a pattern like the one below to show which statement you find most worrying:

* **most worrying**

* *

* * *

* *

* **least worrying**

You will need to talk about the cards among your group and try and come up with a pattern you can all agree on.
Discuss your first and last choices with another group.

TASK 3
Design a poster based on your choices in TASK 2 to tell people about the threat to the rainforests.

ACTIVITY 24
Photocopy master 24

ACTION FOR CHANGE

Read the statements made by different people about Amazonia and match the statements to the people listed below.
When you've done this use the photograph to help you write a newspaper article about the conflict between people about the future of the rainforest.

A SPOKESPERSON FOR THE YANAMAMO TRIBE AT THE ALTAMIRA GATHERING
A BRAZILIAN GOVERNMENT OFFICIAL
A RUBBER TAPPER
A SPOKESPERSON FOR A HAMBURGER CHAIN
A PEASANT FARMER IN AMAZONIA
A JAPANESE BUSINESSMAN
AN ENVIRONMENTALIST
A BRITISH TIMBER MERCHANT

Nobody is listening to us, but now we will make them. They must understand that if they destroy the forest they will destroy themselves in the end. It is the forest people who are the true Brazilians, we know how to look after the forest. It is time the world realised that the white man is destroying the forest for greed, what will he tell his grandchildren when the land has turned to dust?

The tropical rainforests contain more than half of all the world's plants and animals. Every day another animal or species of plant becomes extinct. We depend on them for our climate, our medicines, our foods, we must stop the destruction of the rainforests before it is too late.

We are building four dams in Amazonia. This will provide hydro-electricity to smelt bauxite to make aluminium. Japan needs this cheap source of energy and aluminium to keep her industry profitable. The environmentalists say "Don't touch the rainforest" but that's impossible, in a modern world you have to have raw materials and energy.

We have lived in the rainforest of Amazonia for hundreds of years. We tap the native rubber trees for rubber and sell it. The forest is safe with us, we don't take more than the forest can give. The white men are coming here and chopping down the forest and if they carry on there will be no rubber trees to tap. We can't let them do it, we shall fight to save our way of life and the forest itself.

We will put an end to poverty by developing Amazonia. We can sell the trees to the logging companies, let the multinationals develop the land for their cattle and build huge dams to generate lots of electricity. In this way Brazil will become rich by using the resources of the rainforest and provide jobs and wealth for everyone in Brazil.

A lot of our trade these days is in hardwoods – most of which come from Amazonia. The demand for doors and windows these days is enormous; now can you stop this ever increasing demand? You can't. We have to meet the needs of our customers; fitted kitchens used to be luxuries for the rich, now everyone in Britain expects to have one. You've got to get the wood from somewhere.

I moved into the rainforest because my wife and children need a home, the children were always sick in the city. The government said we could keep any land we cleared to grow crops, it's a hard life but better than living in a shanty town with no job and no land to grow food on.

The United States needs beef and pays good money for it. The land is offered to us cheap by the Brazilian government. People say the land turns to desert after the cattle have been on it a few years, I don't now about that, anyway, it's nothing to do with me. If they want to cut down their forests and let me graze my cattle on them, that's up to them.

N.B. In order to save paper some of the smaller activity sheets are not in numerical order.

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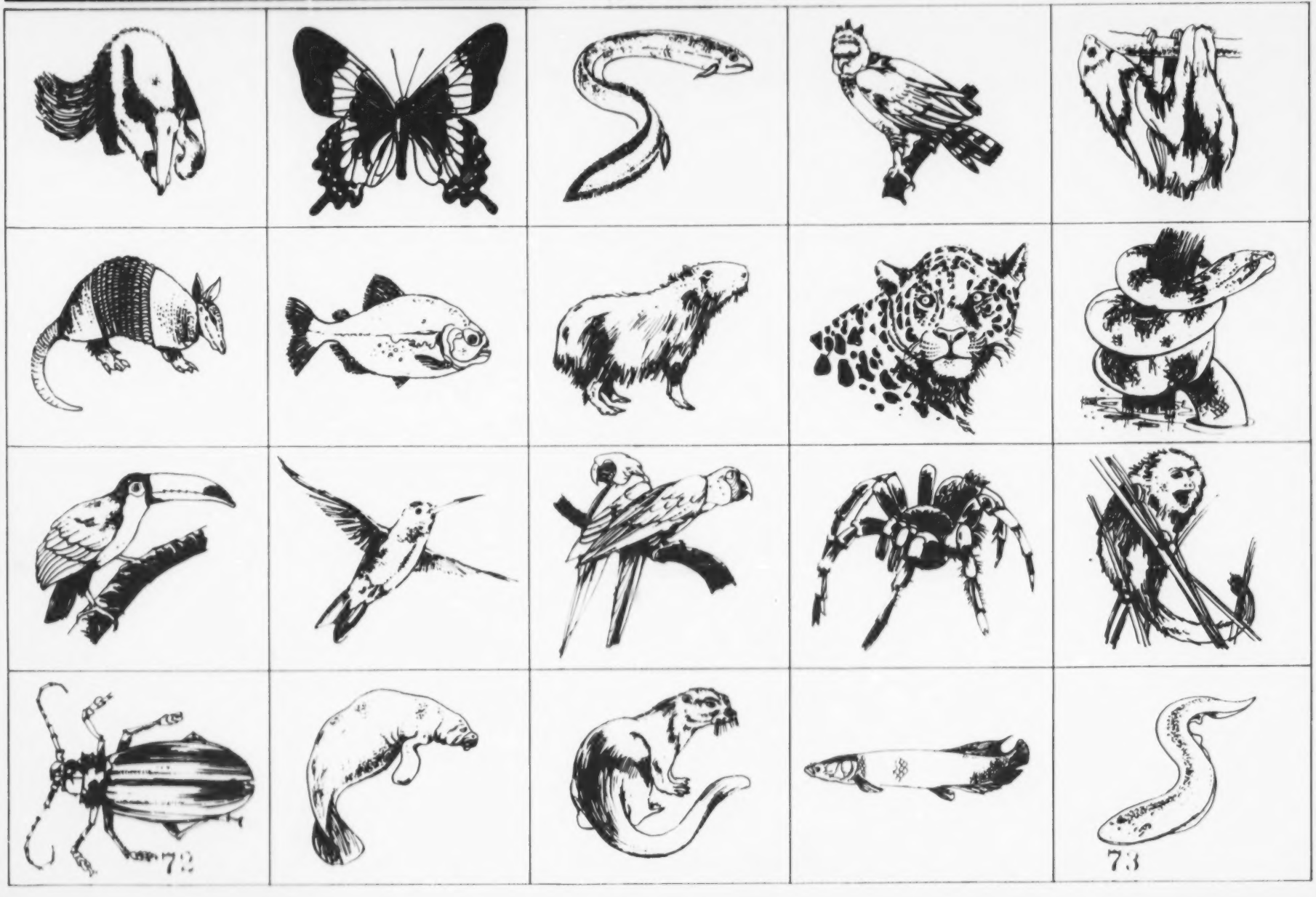
ANIMALS OF THE JUNGLE

ACTIVITY 7 CARDS TO CUT



ANIMALS OF THE JUNGLE

SLOTH
Almost all the sloth's life is spent hanging upside down from it's strong claws, it eats, sleeps, mates and gives birth it this position. A single baby is born each year which clings to it s mother's fur.

HARPY EAGLE
With broad wings and a long tail they can fly through the forest at up to 50 miles per hour. They catch monkeys, sloths and parrots in their strong claws.

ELECTRIC EEL
It has a cylindrical body up to 2 metres long with a fin running from its throat to it s tail, and 2 small fins behind it s gills. It stuns fish and frogs with a high voltage discharge.

BUTTERFLY
Many colourful types of butterfly inhabit the forest. They sip nectar from the flowers which grow on the trees, their larvae are food for many of the forest animals.

GIANT ANTEATER
It lives on the ground, shuffling about with it s elongated snout ever on the lookout for insects. It has long coarse hair and may carry it s young piggy-back until a year old.

ANACONDA
This is the largest of snakes, it s scaly body may reach 10 metres in length. It hangs in the trees near the river waiting to catch its prey.

JAGUAR
These are the big cats of the forest, their spotted furry coats blend in so well with their surroundings. They stalk and eat smaller animals.

CAPYBARA
This is the world's largest rodent, it eats plants from in the rivers. The young are well developed at birth and remain with their parents for a long time.

PIRANHA
It has strong fins to move swiftly through the water, in order to catch it s prey. It has many sharp pointed teeth to bite and kill the animals it hunts. The fins and underside are tinged with red.

ARMADILLO
They eat a wide variety of food, from the forest floor, insects, snakes,small mammals and plants. The young are born with a leathery skin which hardens to form the armadillo's armoured back.

PYGMY MARMOSET
This is the smallest of all monkeys at under 10 centimetres long with a tail twice as long. The baby is carried high amongst the forest trees clinging to the fur on it s father's back.

THERAPHOSA BLONDI
This is the latin name of the bird eating spider. The poison which it uses to kill it s prey is not deadly to human beings. It has 8 hairy legs and can grow to 25 centimetres across.

MACAW
These are members of the parrot family, they have brightly coloured feathers and large powerful hooked beaks. They feed on seeds, nuts and fruits. Macaws nest in hollows in trees, sometimes high off the ground.

HUMMINGBIRD
These tiny birds fly with rapid wingbeats amongst the forest trees. They have long narrow bills and hover in the air to sip nectar from brightly coloured flowers growing high in the trees, helping to pollinate them.

TOUCAN
The long bill of the toucan is useful for reaching out for fruit to eat as it feeds high in the forest trees. It also eats insects, termites and spiders.

LUNGFISH
This fish has paired lungs and only small gills. When the Amazon streams in which it lives dry out it burrows in the mud and breathes air.

PIRARUCI
The largest freshwater fish in the world, lives in the large rivers which join with the Amazon.

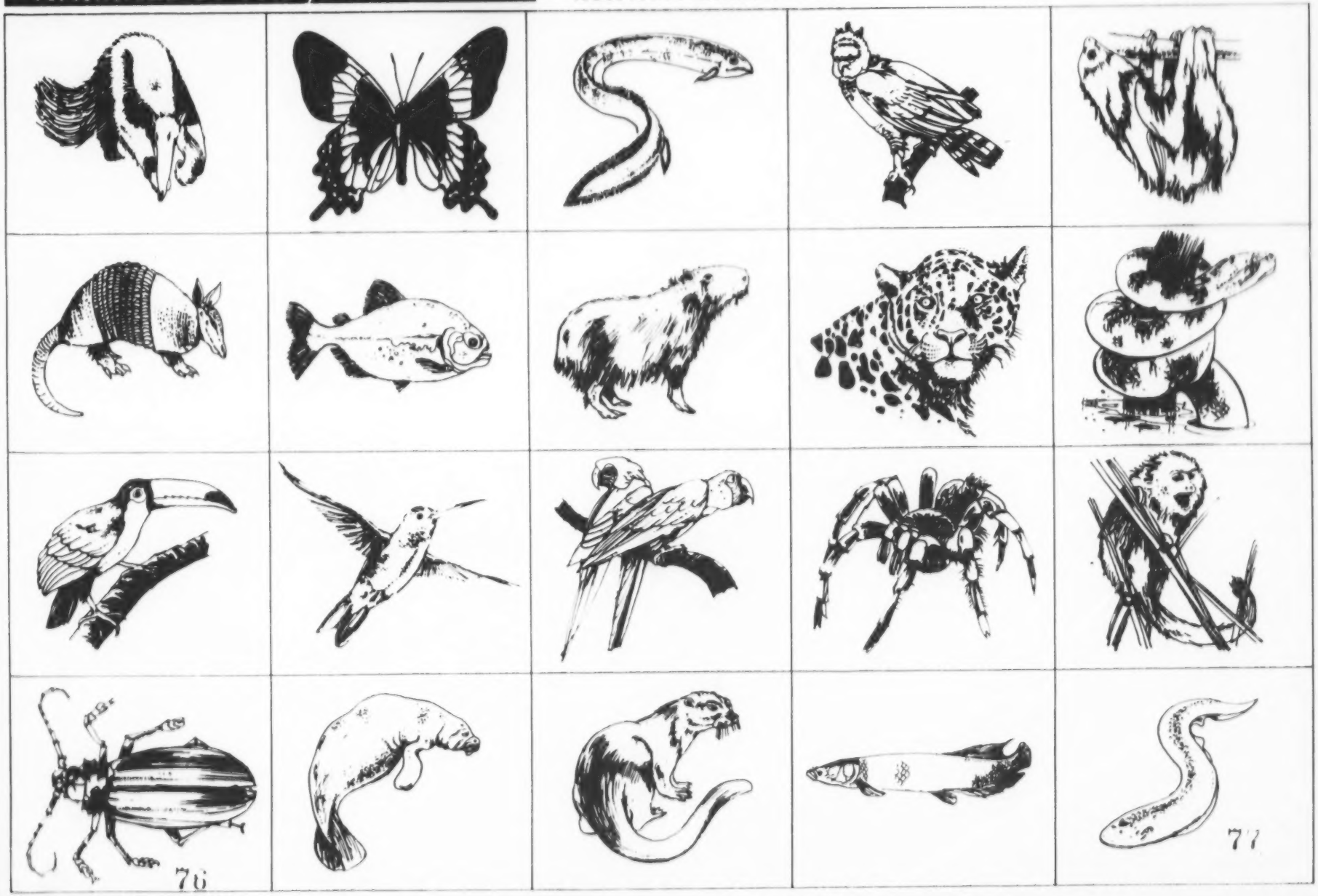
AMAZON OTTER
The largest of the otters, it can be over 2 metres long. It has sleek brown waterproof fur and a broad flattened tail to steer it through the water as it searches for fish to eat.

MANATEE
They live in the larger rivers in the forest, swimming with their paddle like flippers. They feed on water plants.A manatee calf is born in the water and is fed on milk by it s mother.

TITANUS GIGANTEUS
This is one of the largest beetles in the world at almost 15 centimetres long. They live on the forest floor, amongst the fallen leaves that provide their food.

ANIMALS OF THE JUNGLE

ACTIVITY 7 CARDS TO CUT



ANIMALS OF THE JUNGLE

SLOTH Almost all the sloth's life is spent hanging upside down from it's strong claws, it eats, sleeps, mates and gives birth it this position. A single baby is born each year which clings to it s mother's fur.	**HARPY EAGLE** With broad wings and a long tail they can fly through the forest at up to 50 miles per hour. They catch monkeys, sloths and parrots in their strong claws.	**ELECTRIC EEL** It has a cylindrical body up to 2 metres long with a fin running from its throat to it s tail, and 2 small fins behind it s gills. It stuns fish and frogs with a high voltage discharge.	**BUTTERFLY** Many colourful types of butterfly inhabit the forest. They sip nectar from the flowers which grow on the trees, their larvae are food for many of the forest animals.	**GIANT ANTEATER** It lives on the ground, shuffling about with it s elongated snout ever on the lookout for insects. It has long coarse hair and may carry it s young piggy-back until a year old.
ANACONDA This is the largest of snakes, it s scaly body may reach 10 metres in length. It hangs in the trees near the river waiting to catch its prey.	**JAGUAR** These are the big cats of the forest, their spotted furry coats blend in so well with their surroundings. They stalk and eat smaller animals.	**CAPYBARA** This is the world's largest rodent, it eats plants from in the rivers. The young are well developed at birth and remain with their parents for a long time.	**PIRANHA** It has strong fins to move swiftly through the water, in order to catch it s prey. It has many sharp pointed teeth to bite and kill the animals it hunts. The fins and underside are tinged with red.	**ARMADILLO** They eat a wide variety of food, from the forest floor, insects, snakes,small mammals and plants. The young are born with a leathery skin which hardens to form the armadillo's armoured back.
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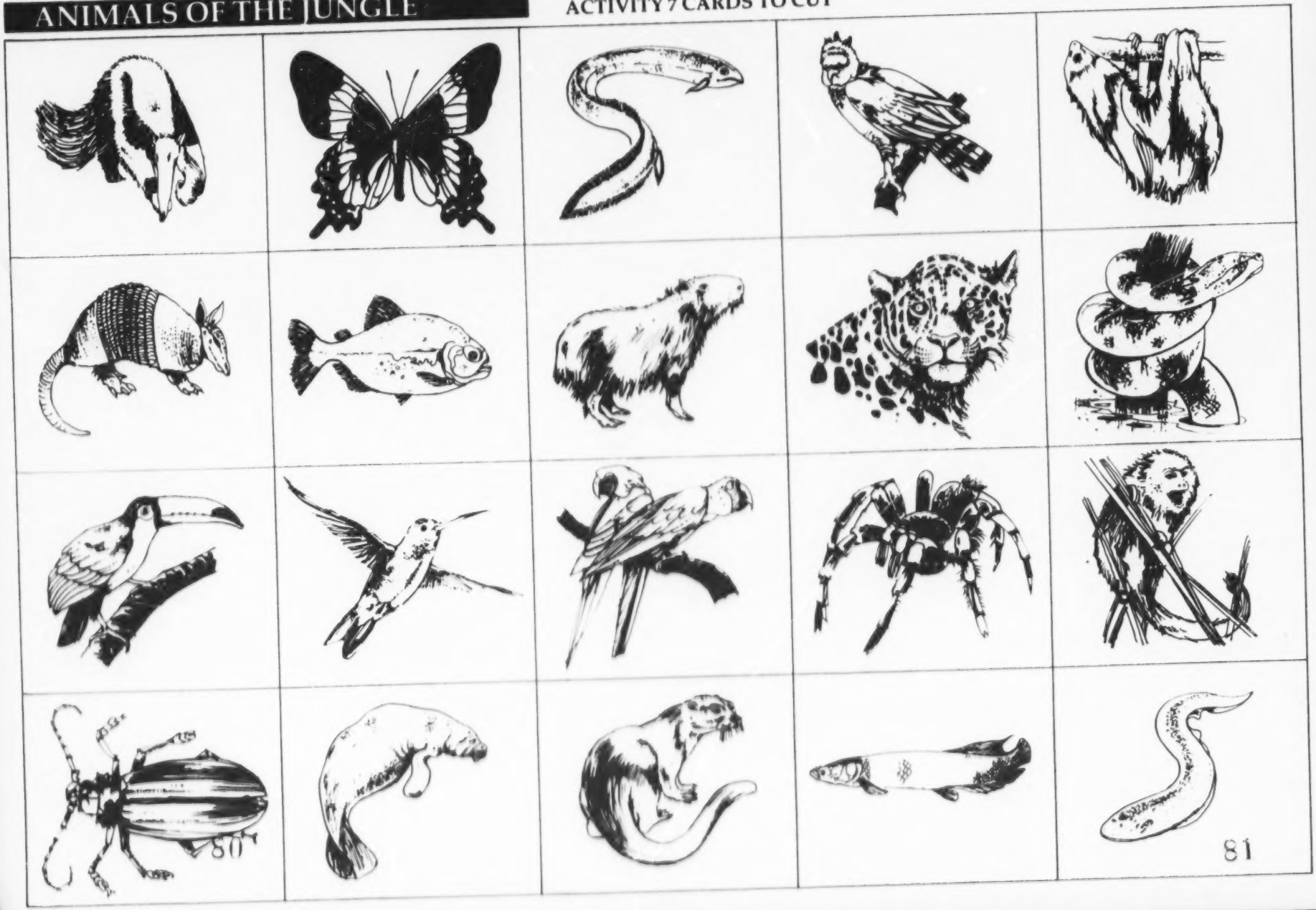
ANIMALS OF THE JUNGLE

ACTIVITY 7 CARDS TO CUT



ANIMALS OF THE JUNGLE

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ANIMALS OF THE JUNGLE

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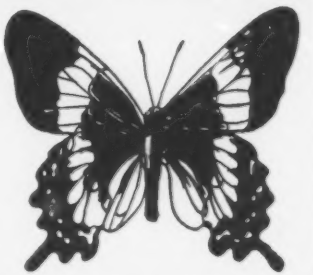

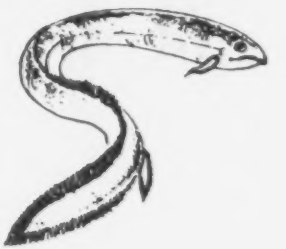

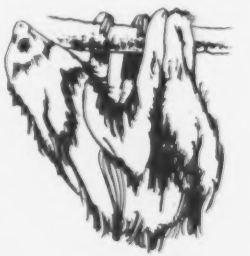

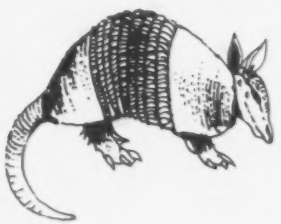

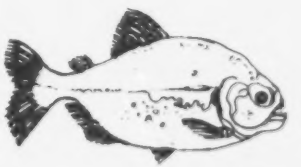

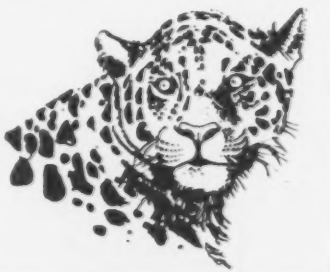

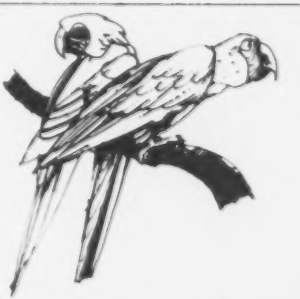

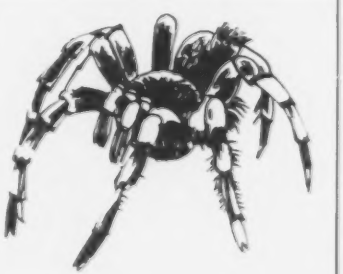

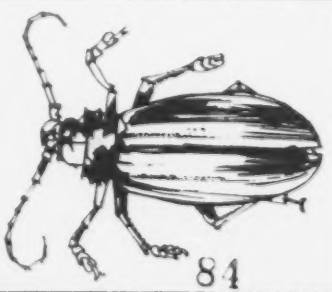

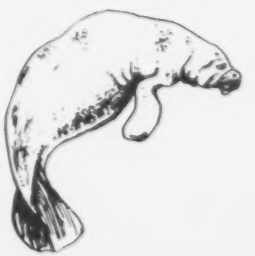

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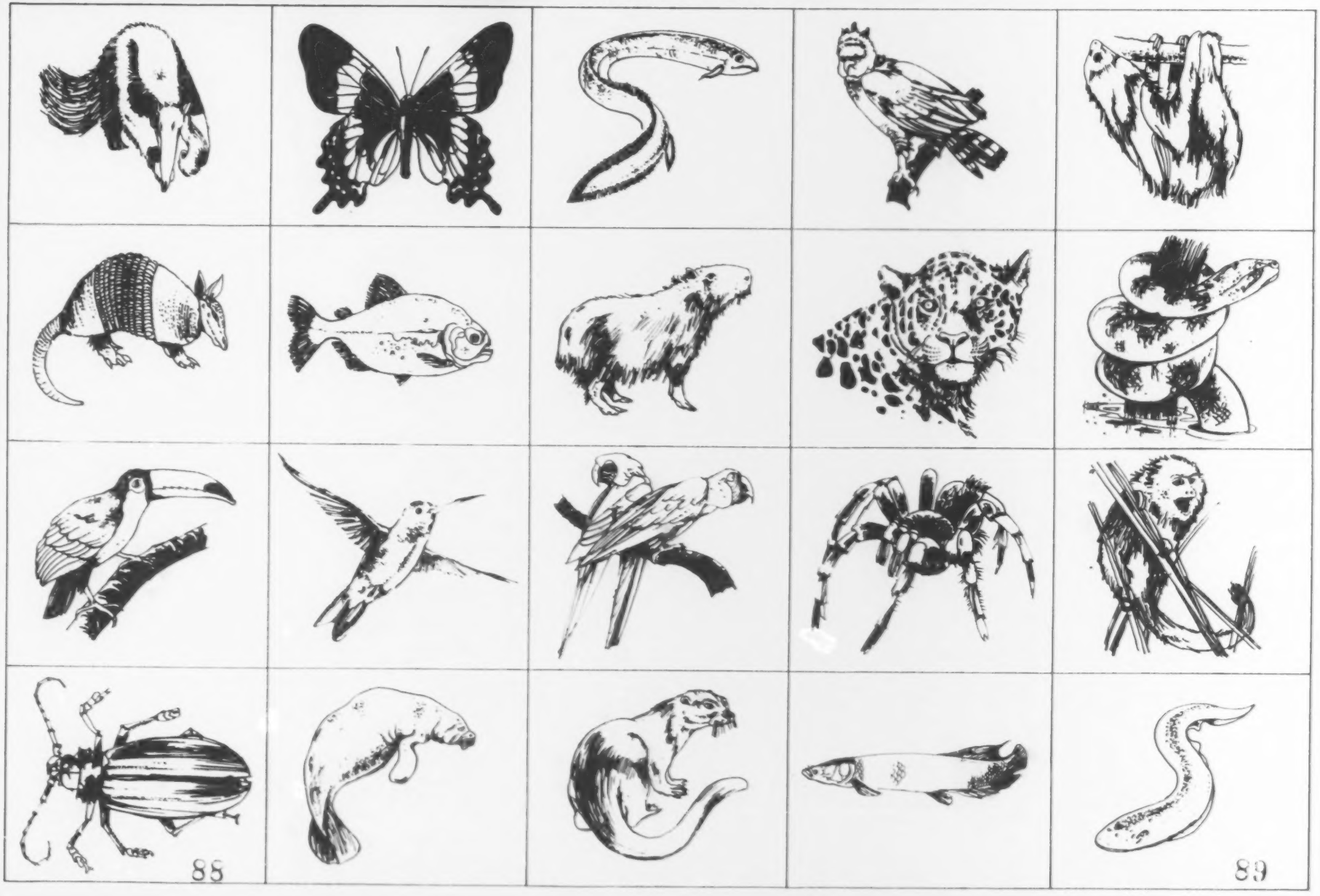

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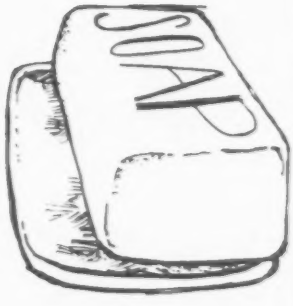
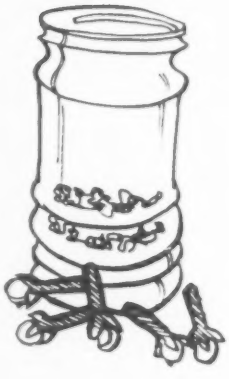
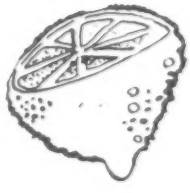
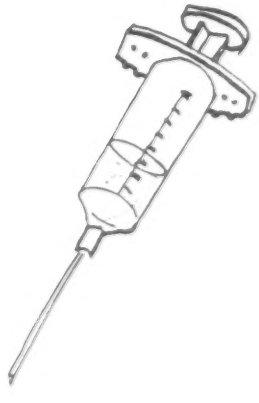
Uses: Toys SOUTH AMERICA	Uses: Flavour CENTRAL AMERICA	Uses: Cancer Cure MADAGASCAR	Uses: Medicine CENTRAL AMERICA
OILS	**SPICES**	**OILS**	**MEDICINE**
Palm Oil	**Cloves**	**Lime**	**Cinchona**
			
Uses: Soap WEST AFRICA	Uses: Cooking INDONESIA	Uses: Flavour and Drink S.E.ASIA	Uses: Quinine AMAZONIA
SPICES	**PLANTS**	**FOOD**	**MEDICINE**
Mace and Nutmeg	**Mother-in-laws tongue**	**Mango**	**Curare**
			
Uses: Cooking S.E.ASIA	Uses: Decorative WEST AFRICA	Uses: Fruit and chutney MALAYSIA	Uses: Surgery WEST AMAZONIA

Cards to cut

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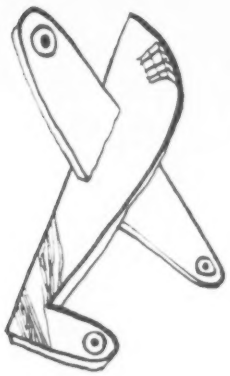
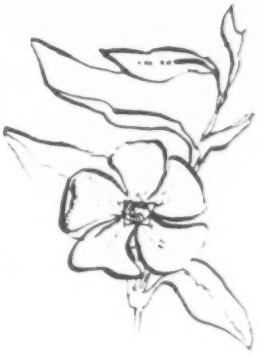
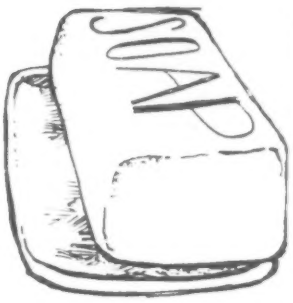
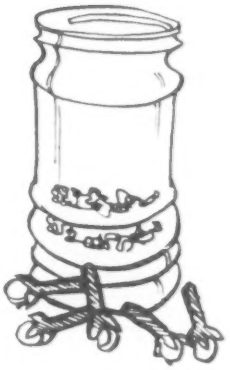
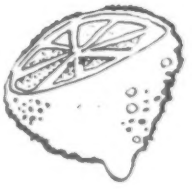
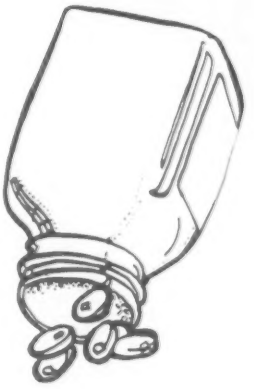
			
Uses: Toys SOUTH AMERICA	Uses: Flavour CENTRAL AMERICA	Uses: Cancer Cure MADAGASCAR	Uses: Medicine CENTRAL AMERICA

OILS	SPICES	OILS	MEDICINE
Palm Oil	Cloves	Lime	Cinchona
			
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	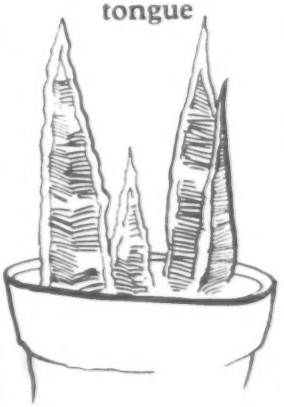	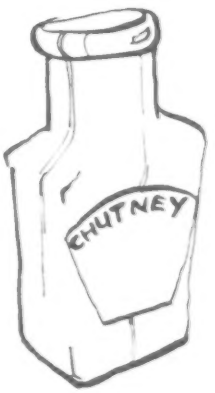	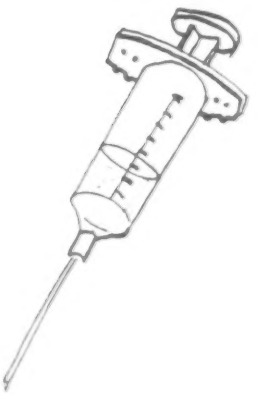
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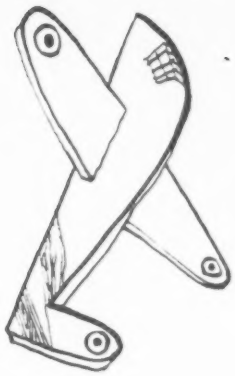			
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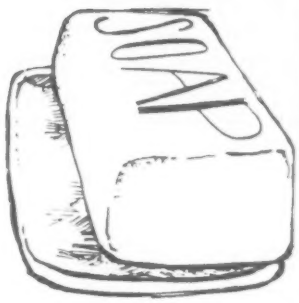
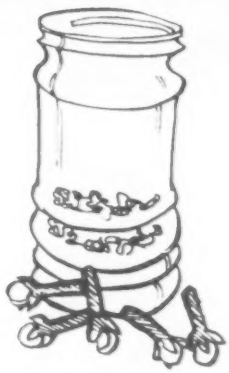
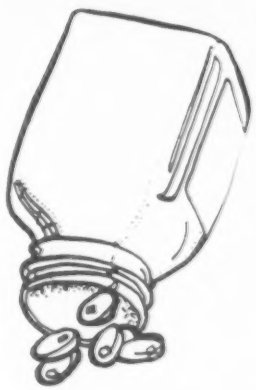
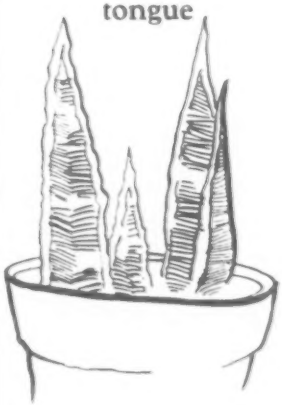
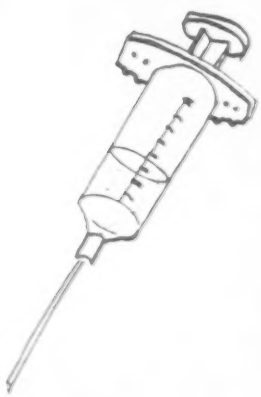
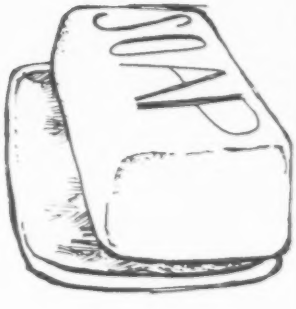
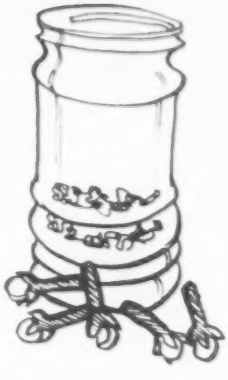
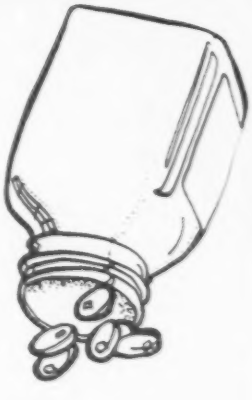
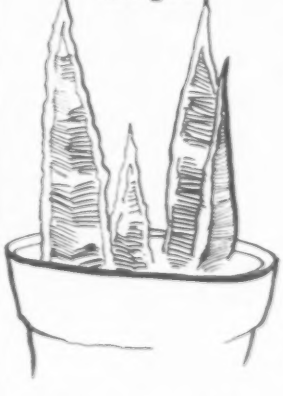
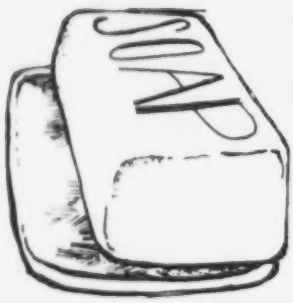
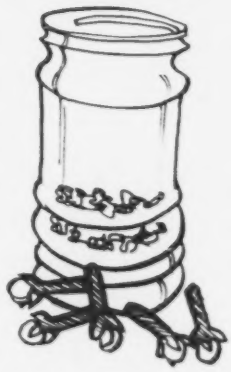
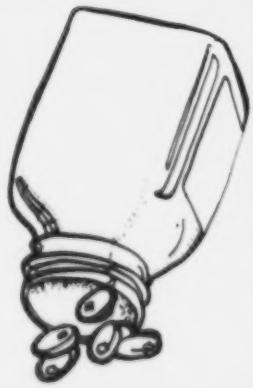
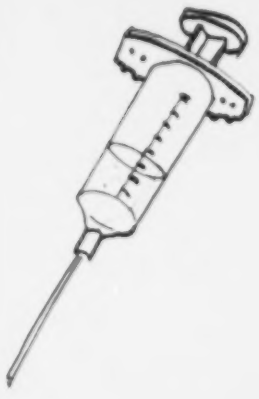
OILS	**SPICES**	**OILS**	**MEDICINE**
Palm Oil	Cloves	Lime	Cinchona
			
Uses: Soap WEST AFRICA	Uses: Cooking INDONESIA	Uses: Flavour and Drink S.E.ASIA	Uses: Quinine AMAZONIA
SPICES	**PLANTS**	**FOOD**	**MEDICINE**
Mace and Nutmeg	Mother-in-laws tongue	Mango	Curare
			
Uses: Cooking S.E.ASIA	Uses: Decorative WEST AFRICA	Uses: Fruit and chutney MALAYSIA	Uses: Surgery WEST AMAZONIA

TIMBER	SPICES	MEDICINE	OILS
Balsa	**Vanilla**	**Vinca**	**Castor Oil**
Uses: Toys SOUTH AMERICA	Uses: Flavour CENTRAL AMERICA	Uses: Cancer Cure MADAGASCAR	Uses: Medicine CENTRAL AMERICA
OILS	**SPICES**	**OILS**	**MEDICINE**
Palm Oil	**Cloves**	**Lime**	**Cinchona**
			
Uses: Soap WEST AFRICA	Uses: Cooking INDONESIA	Uses: Flavour and Drink S.E.ASIA	Uses: Quinine AMAZONIA
SPICES	**PLANTS**	**FOOD**	**MEDICINE**
Mace and Nutmeg	**Mother-in-laws tongue**	**Mango**	**Curare**
			
Uses: Cooking S.E.ASIA	Uses: Decorative WEST AFRICA	Uses: Fruit and chutney MALAYSIA	Uses: Surgery WEST AMAZONIA

TIMBER	SPICES	MEDICINE	OILS
Balsa	**Vanilla**	**Vinca**	**Castor Oil**
Uses: Toys SOUTH AMERICA	**Uses: Flavour** CENTRAL AMERICA	**Uses: Cancer Cure** MADAGASCAR	**Uses: Medicine** CENTRAL AMERICA
OILS	**SPICES**	**OILS**	**MEDICINE**
Palm Oil	**Cloves**	**Lime**	**Cinchona**
			
Uses: Soap WEST AFRICA	**Uses: Cooking** INDONESIA	**Uses: Flavour and Drink** S.E.ASIA	**Uses: Quinine** AMAZONIA
SPICES	**PLANTS**	**FOOD**	**MEDICINE**
Mace and Nutmeg	**Mother-in-laws tongue**	**Mango**	**Curare**
			
Uses: Cooking S.E.ASIA	**Uses: Decorative** WEST AFRICA	**Uses: Fruit and chutney** MALAYSIA	**Uses: Surgery** WEST AMAZONIA

Cards to cut

OILS

Ylang-Ylang

Uses: Perfume

THE MOLUCCAS

GUMS & RESINS

Rubber

Uses: Tyres and boots

AMAZONIA

GUMS & RESINS

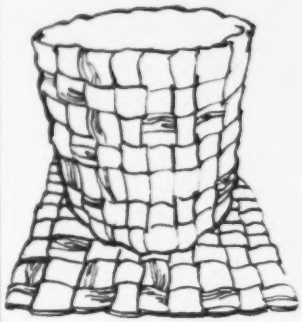
Copals

Uses: Paint and varnish

CENTRAL AMERICA

TIMBER

Rattans

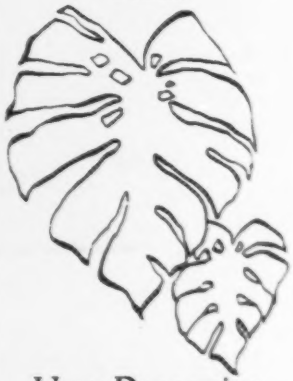


Uses: Ropes, mats

S.E.ASIA

PLANTS

Swiss Cheese Plant

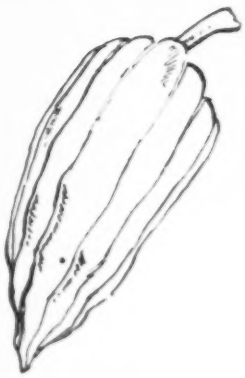


Uses: Decorative

GUATEMALA

FOOD

Cocoa

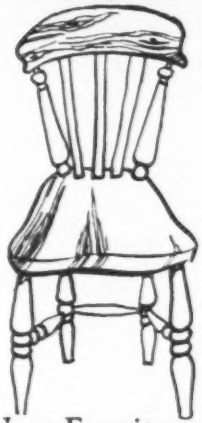


Uses: Flavour and sweets

C.AMERICA

TIMBER

Mahogany



Uses: Furniture, boats

WEST AFRICA

TIMBER

Bamboo

Uses: Cane furniture

S.E.ASIA

PLANTS

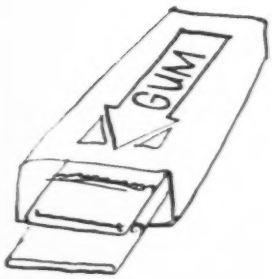
Orchid

Uses: Decorative

VENEZUELA

GUMS & RESINS

Chicle



Uses: Chewing Gum

CENTRAL AMERICA

FOOD

Banana

Uses: Food

AFRICA

SPICES

Pepper

Uses: Cooking

INDIA

OILS

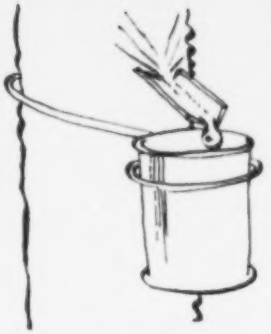
Ylang-Ylang

Uses: Perfume

THE MOLUCCAS

GUMS & RESINS

Rubber



Uses: Tyres and boots

AMAZONIA

GUMS & RESINS

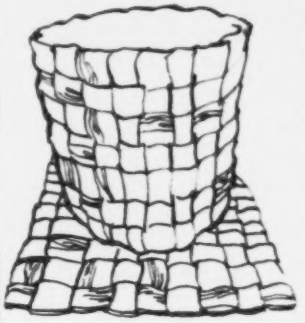
Copals

Uses: Paint and varnish

CENTRAL AMERICA

TIMBER

Rattans



Uses: Ropes, mats

S.E.ASIA

PLANTS

Swiss Cheese Plant

Uses: Decorative

GUATEMALA

FOOD

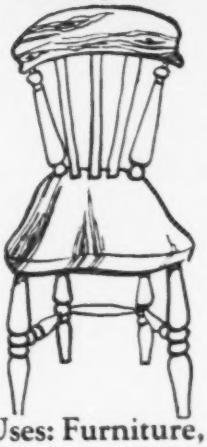
Cocoa

Uses: Flavour and sweets

C.AMERICA

TIMBER

Mahogany



Uses: Furniture, boats

WEST AFRICA

TIMBER

Bamboo

Uses: Cane furniture

S.E.ASIA

PLANTS

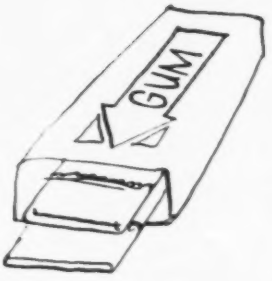
Orchid

Uses: Decorative

VENEZUELA

GUMS & RESINS

Chicle



Uses: Chewing Gum

CENTRAL AMERICA

FOOD

Banana

Uses: Food

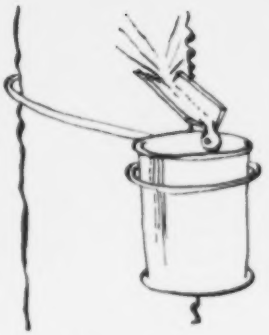
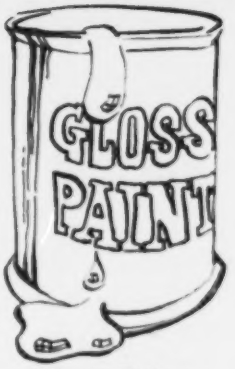
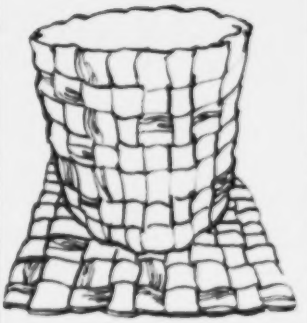
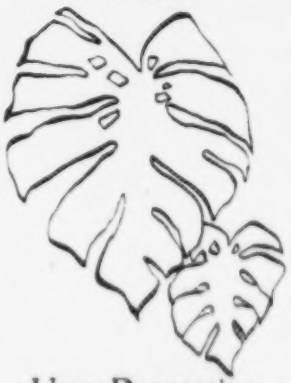
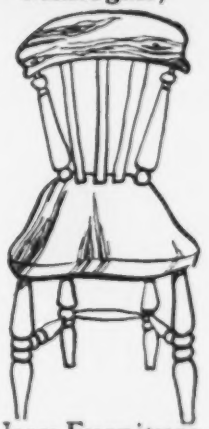
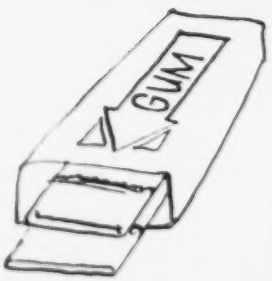
AFRICA

SPICES

Pepper

Uses: Cooking

INDIA

OILS	GUMS & RESINS	GUMS & RESINS	TIMBER
Ylang-Ylang	**Rubber**	**Copals**	**Rattans**
			
Uses: Perfume THE MOLUCCAS	Uses: Tyres and boots AMAZONIA	Uses: Paint and varnish CENTRAL AMERICA	Uses: Ropes, mats S.E.ASIA
PLANTS	**FOOD**	**TIMBER**	**TIMBER**
Swiss Cheese Plant	**Cocoa**	**Mahogany**	**Bamboo**
			
Uses: Decorative GUATEMALA	Uses: Flavour and sweets C.AMERICA	Uses: Furniture, boats WEST AFRICA	Uses: Cane furniture S.E.ASIA
PLANTS	**GUMS & RESINS**	**FOOD**	**SPICES**
Orchid	**Chicle**	**Banana**	**Pepper**
			
Uses: Decorative VENEZUELA	Uses: Chewing Gum CENTRAL AMERICA	Uses: Food AFRICA	Uses: Cooking INDIA

OILS

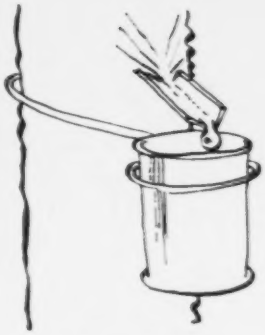
Ylang-Ylang

Uses: Perfume

THE MOLUCCAS

GUMS & RESINS

Rubber



Uses: Tyres and boots

AMAZONIA

GUMS & RESINS

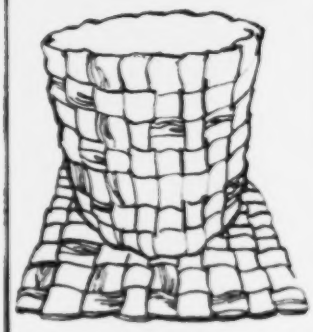
Copals

Uses: Paint and varnish

CENTRAL AMERICA

TIMBER

Rattans

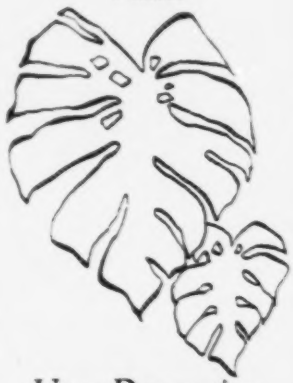


Uses: Ropes, mats

S.E.ASIA

PLANTS

Swiss Cheese Plant



Uses: Decorative

GUATEMALA

FOOD

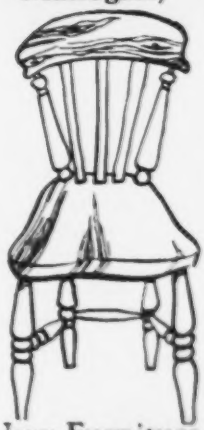
Cocoa

Uses: Flavour and sweets

C.AMERICA

TIMBER

Mahogany



Uses: Furniture, boats

WEST AFRICA

TIMBER

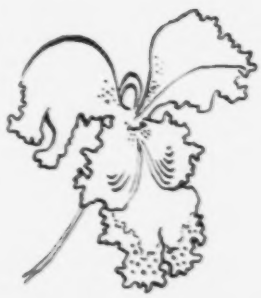
Bamboo

Uses: Cane furniture

S.E.ASIA

PLANTS

Orchid

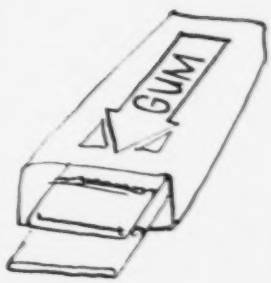


Uses: Decorative

VENEZUELA

GUMS & RESINS

Chicle



Uses: Chewing Gum

CENTRAL AMERICA

FOOD

Banana

Uses: Food

AFRICA

SPICES

Pepper

Uses: Cooking

INDIA

OILS

Ylang-Ylang

Uses: Perfume

THE MOLUCCAS

GUMS & RESINS

Rubber

Uses: Tyres and boots

AMAZONIA

GUMS & RESINS

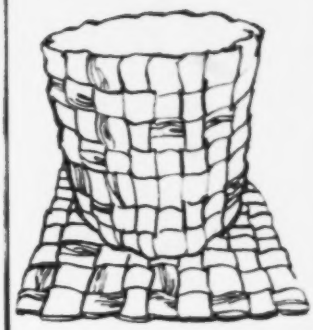
Copals

Uses: Paint and varnish

CENTRAL AMERICA

TIMBER

Rattans



Uses: Ropes, mats

S.E.ASIA

PLANTS

Swiss Cheese Plant

Uses: Decorative

GUATEMALA

FOOD

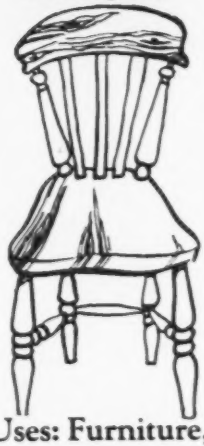
Cocoa

Uses: Flavour and sweets

C.AMERICA

TIMBER

Mahogany



Uses: Furniture, boats

WEST AFRICA

TIMBER

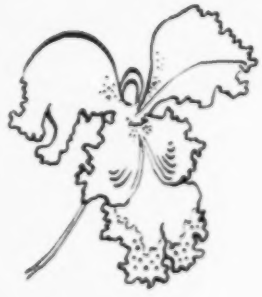
Bamboo

Uses: Cane furniture

S.E.ASIA

PLANTS

Orchid

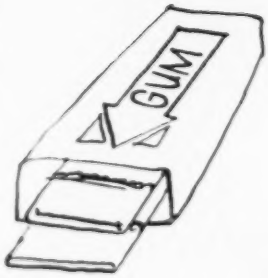


Uses: Decorative

VENEZUELA

GUMS & RESINS

Chicle



Uses: Chewing Gum

CENTRAL AMERICA

FOOD

Banana

Uses: Food

AFRICA

SPICES

Pepper

Uses: Cooking

INDIA

OILS

Ylang-Ylang

Uses: Perfume

THE MOLUCCAS

GUMS & RESINS

Rubber

Uses: Tyres and boots

AMAZONIA

GUMS & RESINS

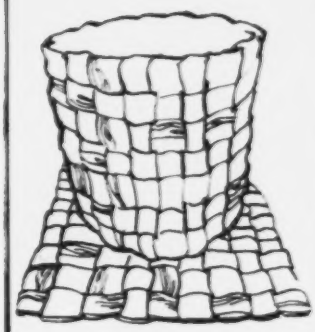
Copals

Uses: Paint and varnish

CENTRAL AMERICA

TIMBER

Rattans

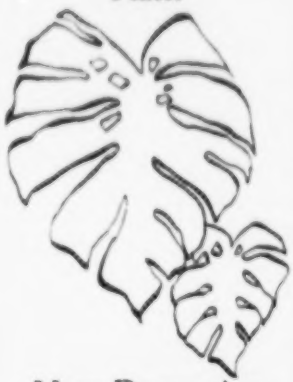


Uses: Ropes, mats

S.E.ASIA

PLANTS

Swiss Cheese Plant



Uses: Decorative

GUATEMALA

FOOD

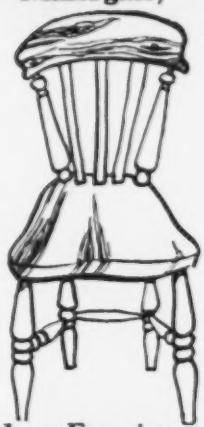
Cocoa

Uses: Flavour and sweets

C.AMERICA

TIMBER

Mahogany



Uses: Furniture, boats

WEST AFRICA

TIMBER

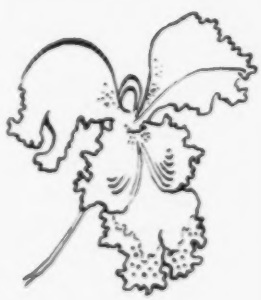
Bamboo

Uses: Cane furniture

S.E.ASIA

PLANTS

Orchid

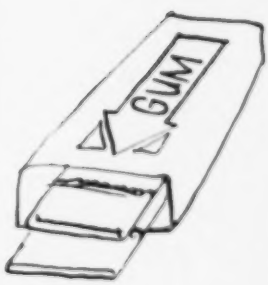


Uses: Decorative

VENEZUELA

GUMS & RESINS

Chicle



Uses: Chewing Gum

CENTRAL AMERICA

FOOD

Banana

Uses: Food

AFRICA

SPICES

Pepper

Uses: Cooking

INDIA

Using the Rainforest	ACTIVITY 15		B
The trees of the rainforest provide fuel for people to cook with.	Many of the pot plants we have in our houses, like the Swiss Cheese plant,are found in the rainforest.	People living in the rainforest clear some land to grow crops such as maize and groundnuts, sweet potatoes and tapioca.	Leaves from plants and trees are used as medicines, for weaving mats and baskets, and for wrapping parcels and food.
Chocolate is made from cocoa beans. Lots of trees are cut down so cocoa plants can be grown.	Rainforest trees are cleared to grow cash crops such as pepper to sell to other countries.	The seats in our parks and playgrounds are often made from the wood of rainforest trees.	Resin is used for starting fires and making torches.
Timber is used to build fences, bridges and houses.	Many different oils from the rainforest are used to make perfumes.	Many different types of fruit and nuts grow in the forest for people to eat.	Lots of things which are good to eat, like mushrooms and berries, grow wild in the rainforest.
Lots of musical instruments such as clarinets and pianos, oboes and bagpipes, are made from wood from the rainforest.	Rainforest plants are used to make medicines and can help us find cures for diseases such as cancer.	There is honey in the rainforest which the people collect and use to sweeten their food.	Britain uses hardwoods from the tropical rainforests such as mahogany and teak to make boats.

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A World without Rainforests

ACTIVITY 23

Thousands of rainforest people have been killed by those who want to exploit the forests. These people have lived in harmony with the forest for thousands of years. Their special knowledge of the forest may be lost forever.	New industrial raw materials are still being discovered in rainforests: many will never be found at all if the trees are destroyed.	Rainforests have already given us coffee and bananas. There are hundreds of other food plants which may die out before we have had a chance to try them.	Trees are cut down to plant rubber and palm oil trees. Chemicals sprayed onto these trees pollute the rivers, kill many of the fish and destroy the people's crops.
Rainforest plants are used to make medicines to help find cures for diseases such as cancer. If the forests are destroyed we may never discover cures for some diseases.	The rainforests have evolved over millions of years and once they have been cut down they cannot be replaced.	Without the trees of the rainforest the land would become desert where no people, animals or plants could live.	The tropical rainforests pump heat from the hot regions of the world to the cooler regions, and without them the climate will change.
Trees purify the air we breathe. Without the trees of the rainforest our air would become more polluted.	When the forest is cut down the people who have always lived there lose their traditional way of life.	At least half of the rainwater that falls on tropical forests is returned to the atmosphere by the forest. It may then fall as rain in areas many miles away. Deforestation may affect the rainfall in these areas too.	Without forest trees to hold the soil many rivers and dams get silted up with earth, rocks and stones which are washed away by the rain.
When the forest is burned all the carbon in the trees goes into the air and increases the amount of carbon dioxide which means the temperature of the earth's surface rises. This could lead to the melting of the ice caps known as the 'greenhouse effect'.	Forests protect the soil from the rain. Without them the soil is washed away into the creeks and the rivers. Trees absorb the rain and protect the people from floods.	People living in and around the rainforests depend on fresh water supplies to grow their crops and stay healthy. As the forest is cut down their water supply falls as the rainfall decreases.	More than half of the world's animal species live in the rainforests. If the forests are cut down these animals will die out and so will some of the world's most interesting and beautiful plants.

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RANCHING

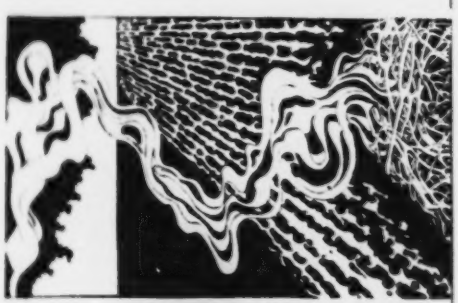
Many rain forest areas contain minerals such as gold, copper, iron and diamonds. Mining destroys trees and discharges poisons into the rivers. The whole ecology of the rain forest is disrupted.

DAMS

Timber companies cut down trees to export to other countries to make furniture, buildings etc. Rain forest soils are very thin, once the trees are cut down the soil is soon worn out completely.

LOGGING

Many of the countries which have tropical rainforests also have growing populations which need land to grow food on. The only way for many people to survive is to move to the forest and clear the trees to grow food crops.



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In many rain forests they are clearing the trees to make ranchlands for cattle. Most of the beef produced on these ranches goes to America. Ranches have a terrible effect on the land; within two years it is completely worn out.

FARMING

Millions of trees are destroyed to build dams to make hydro – electricity. A single dam in a tropical rain forest can threaten 400 different species of animals and plants and flood half a million hectares of land.

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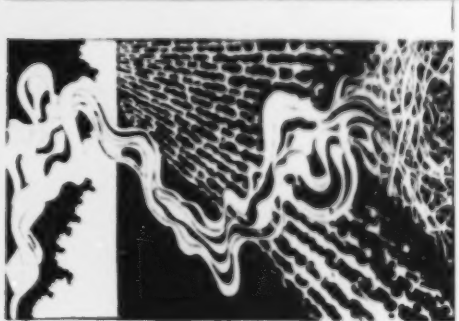

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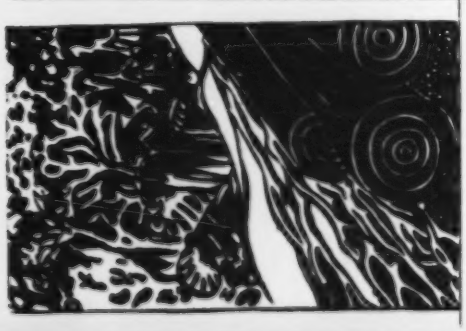

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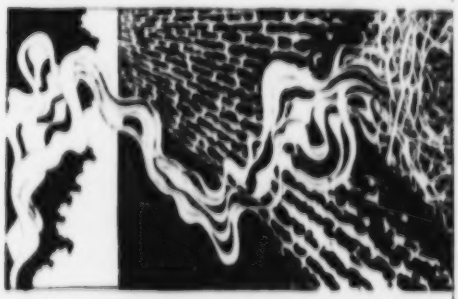

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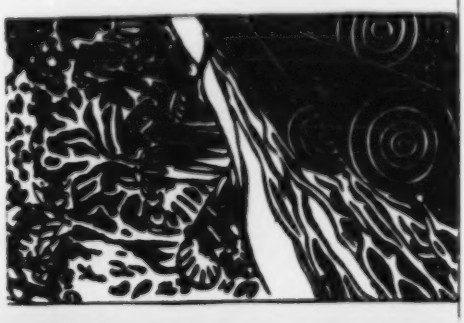

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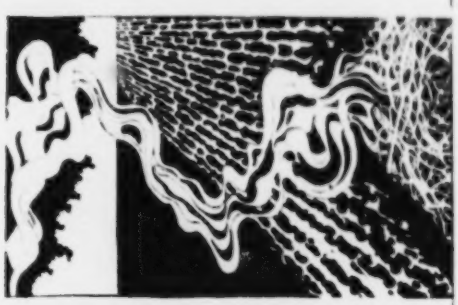

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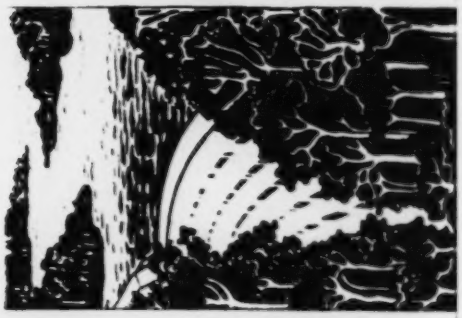

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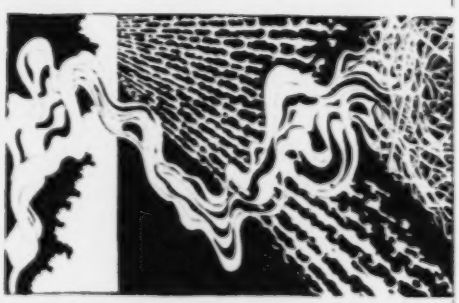

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There are salt springs in the rainforest from which people make salt to use in cooking.	Cane from the rainforest is used to make fashionable furniture.	In the many rivers and streams are thousands of different fish to catch and eat.	There are thousands of different insects in the rainforest. Many of them are good to eat.
Rattans from the rainforest are used to make ropes and mats.	Bamboo from the rainforest is made into water containers, cups, storage jars, fishing rods and other things.	Many gums and resins which are needed to make paints and varnishes come from the rainforest.	Balsa wood from the rainforest is used to make toys like model aeroplanes.
Bamboo is used to make roofs for houses, floors, walls, fences, fishtraps and baskets.	Vines from trees are used for tying parcels and for weaving. Fibres from the vines are used to make nets.	Many trees in the rainforest are cut down so rubber trees can be planted so we can have tyres for our cars, wellington boots and rubber gloves.	There are many animals which live in the forest to hunt and eat, such as wild boar, deer monkey and squirrel.

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Wood is carved into beautiful things like knife handles and tobacco boxes.	When we build houses in Britain we sometimes use wood from the rainforest for our doors and window frames.	Trees are cut down and sent to Britain to make furniture and other things such as boats and toys.	Many spices come from the rainforest like cloves, vanilla and cinnamon which are used to make cakes and biscuits.
There are salt springs in the rainforest from which people make salt to use in cooking.	Cane from the rainforest is used to make fashionable furniture.	In the many rivers and streams are thousands of different fish to catch and eat.	There are thousands of different insects in the rainforest. Many of them are good to eat.
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